ENCLOSURE A
EPA'S COMMENTS ON DRAFT DELIVERABLES DATED SEPTEMBER 7, 2004
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

WORK PLAN, FIELD SAMPLING PLAN, QUALITY ASSURANCE/QUALITY CONTROL PROJECT PLAN, AND SAFETY AND HEALTH PLAN

FALCON REFINERY SUPERFUND SITE
INGLESIDE, SAN PATRICIO COUNTY, TEXAS
FEBRUARY 3, 2005

The U.S. Environmental Protection Agency (EPA, Region 6) has performed a technical review of the "Draft Remedial Investigation and Feasibility Study Work Plan" (Draft WP), "Draft RI/FS Field Sampling Plan" (Draft FSP), "Draft RI/FS Quality Assurance and Quality Control Project Plan" (Draft QAPP), and "Draft Safety and Health Plan" (Draft SHP); each dated September 7, 2004. Enclosure A consists of the EPA's comments on each draft deliverable. These deliverables were submitted by National Oil Recovery Corporation (NORCO) according to the requirements specified in the Administrative Order on Consent (AOC) for RI/FS (effective June 9, 2004) for the Falcon Refinery Superfund Site (hereinafter "the Site"). The EPA's comments are being submitted pursuant to the AOC and are not inconsistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), National Oil and Hazardous Substances Pollution Contingency Plan (NCP), AOC for RI/FS, and Superfund RI/FS guidance and policies. The EPA's comments also consist of and consider the comments provided by the Texas Commission on Environmental Quality (TCEQ) and the Federal and State Natural Resource Trustees. The EPA has no comments concerning the Draft SHP.

Enclosure A is organized as follows. A "Table of Contents" identifies the EPA's "General Comments," "Deliverable-Specific Comments," and "Attachments" (on compact disk). The EPA's general comments are relevant to the RI/FS for the Site and are referenced in the deliverable-specific comments. The deliverable-specific comments consist of the EPA's comments pertaining to the information contained in each of NORCO's RI/FS deliverables.

According to Paragraph 29 of the AOC, an Amended Draft RI/FS WP, FSP, and QAPP are due to the EPA within thirty (30) calendar days of the receipt of these comments. Paragraph 29 also provides the EPA with the sole discretion to determine whether to extend any such deadline and the length of any deadline extension. Paragraph 31 of the AOC defines the alternative comments that the EPA may provide after reviewing any amended submissions.

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(On Compact Disk)

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General Comments

The following "General Comments" consist of Superfund-specific issues which NORCO may not have considered in their preparation of the September 7, 2004, draft RI/FS deliverables. These general comments are relevant to the RI/FS for this Site and are referenced in the EPA's "Deliverable-Specific Comments" on the Draft WP, FSP, and QAPP. The EPA's general comments are listed alphabetically.

A. Key Definitions

The following "key definitions" apply to the RI/FS for this Site. These definitions are referenced throughout the EPA's comments.

"Facility" is defined in CERCLA §101(9) as:

> "(A) any building, structure, installation, equipment, pipe or pipeline . . ., well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, . . . or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; . . ."

"Hazardous substance" is defined in CERCLA §101(14) as:

> "(A) any substance designated pursuant to the Clean Water Act, (B) any element, compound, mixture, solution, or substance designated pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, (C) any hazardous wastes having the characteristics identified or listed pursuant to the Resource Conservation and Recovery Act, (D) any toxic pollutant listed under the Clean Air Act." [The EPA maintains and updates a list of hazardous substances in 40 CFR Part 302.4 (Designation of Hazardous Substances)].

"Pollutant or contaminant" is defined in CERCLA §101(33) as including:

> "any element, substance, compound, or mixture . . . which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause adverse effects in such organisms or their offspring."

"Potentially Responsible Party" is defined in CERCLA §107(a)(1), which imposes liability on four classes of persons:

> "(1) the current owner and operator of a vessel or facility; (2) any prior person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of, (3) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, . . . (4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities . . . from which there is a release, or threatened release which causes the incurrence of response costs, of a hazardous substance . . . ."

"Release" is defined in CERCLA §101(22) as:

> "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment . . . ."

B. Facility (Site) Boundaries

The EPA uses the term "site," which is not defined in CERCLA, in referring to a "release" or "facility" on the National Priorities List (NPL). The term "site" is meant to be synonymous with "release" or "facility" and is not meant to suggest that the listing is geographically defined. The following discussions clarify the intent and meaning of these terms.

The Federal Register Notice (Final Rule; National Priorities List for Uncontrolled Hazardous Waste Sites; Volume 56, No. 28; February 11, 1991), concerning the NPL, states that:

> "The NPL does not describe releases in precise geographical terms, and the agency [EPA] believes that it would be neither feasible nor consistent with the limited purpose of the NPL (as the mere identification of releases), for it to do so. CERCLA Section 105(a)(8)(B) directs EPA to list national priorities among the known 'releases or threatened releases' of hazardous substances. Thus, the purpose of the NPL is merely to identify releases of hazardous substances that are priorities for further evaluation. The names of sites are provided for identification purposes only; the sites are not limited to (or coextensive with) the boundaries of properties that may be referred to in the name. Of course, HRS data upon which listing is based will, to some extent, describe which release is at issue; that is, the NPL site would include (but not be limited to) all releases evaluated as part of that HRS analysis . . . .

> Identifying a release or facility on the NPL[1] provides notice that the entire facility will be addressed; the facility includes the source or sources of contamination and any area where a hazardous substance release has "come to be located" (CERCLA Section 101(9)). The listing process is not intended to define or reflect the "boundaries" of such facilities or releases. In fact, CERCLA does not refer to site "boundaries," and that term has little or no legal significance.
>
> The NPL does provide that the nature and extent of the threat presented by a release will be determined by an RI/FS as more information is developed on site contamination (40 CFR 300.430(d)(2) (55 FR 8847, March 8, 1990)). During the RI/FS process, the release may be found to be larger or smaller than was originally known, as more is learned about the source and the migration of the contamination. However, this inquiry focuses on an evaluation of the threat posed; the boundaries of the release need not be defined, and in any event are independent of listing. Moreover, it generally is impossible to discover the full extent of where the contamination 'has come to be located' before all necessary studies and remedial work are completed at a site; indeed, the boundaries of the contamination can be expected to change over time. Thus, in most cases, it will be impossible to describe the boundaries of a release with certainty. At the same time, however, the RI/FS or the Record of Decision (which defines the remedy selected) may offer a useful indication to the public of the areas of contamination at which the Agency is considering taking a response action, based on information known at that time.
>
> *[1]The terms 'facility' and 'release' are used interchangeably in CERCLA Section 105(a)(8)(B), which establishes the NPL. For ease of reference, EPA also uses the term 'site,' which is not defined in CERCLA, in referring to a 'release' or 'facility' on the NPL. The term 'site' is meant to be synonymous with 'facility' or 'release' and is not meant to suggest that the listing is geographically defined."*

The EPA's Potentially Responsible Party (PRP) search manual entitled, "PRP Search Manual" (Office of Enforcement and Compliance Assurance, September 2003) states that:

> "The term 'facility' has been interpreted to include the site of a hazardous waste disposal operation and the ground upon which hazardous substances were deposited."

C. Hazard Ranking System Documentation Record

The information presented in NORCO's Draft WP and FSP significantly relied upon the data presented in the "Hazard Ranking System Documentation Record" (HRS, February 2002) for the Site, prepared by the Texas Natural Resource Conservation Commission (now the TCEQ) in cooperation with the EPA. The information taken from the HRS Documentation Record, and referenced throughout NORCO's deliverables, should be clearly identified and distinguished from the recent information and proposed RI/FS activities presented in NORCO's deliverables. The following discussions clarify the intent and purpose of the HRS.

Appendix A (HRS) to Part 300 of the NCP states that:

> "The HRS serves as a screening device to evaluate the potential for releases of uncontrolled hazardous substances to cause human health or environmental damage. The HRS provides a measure of relative rather than absolute risk. It is designed so that it can be consistently applied to a wide variety of sites."

The EPA's HRS fact sheet entitled, "The Revised Hazard Ranking System: Qs and As" (Publication 9320.7-02FS, November 1990) provides additional clarification on the intent and purpose of the HRS. The HRS fact sheet states that the HRS is designed to be a simple, numerically based scoring system that uses information obtained from the initial, limited investigations conducted at a site; specifically, the Preliminary Assessment (PA) and the Site Inspection (SI). The EPA uses the HRS as a screening mechanism to determine whether a site should be placed on the NPL. The NPL informs the public of sites that the EPA has decided require further detailed investigations. These investigations determine whether the sites represent a long-term threat to public health or the environment and, therefore, require remedial action.

The HRS fact sheet states that the HRS is not a risk assessment. Initial studies like a PA or SI, used in the preparation of the HRS documentation, are not as detailed in scope as an RI/FS. The HRS is used as a screening tool to identify those sites that represent the highest priority for further investigation and possible cleanup under the Superfund program. Its purpose is not to fully characterize the source and the extent of the contamination at a site or to define site risks to human health and the environment. This is accomplished during the RI/FS.

The HRS fact sheet also states that the HRS does not determine whether cleanup is possible or necessary, or the amount of cleanup needed at a site; these issues are considered in the more detailed RI/FS that the EPA undertakes to assess the nature and extent of the public health and environmental risks associated with the site. In planning these remedial investigations, the EPA does consider the HRS score, along with, further site data, other response alternatives, and other appropriate factors.

D. Data Quality Objectives

The Draft QAPP (including the Draft WP and FSP) submitted by NORCO does not discuss the required Data Quality Objectives (DQO) for the RI/FS and the Site. The DQO Process should be used during the planning stage of any study that requires data collection, *before* the data are collected. The following discussions clarify the intent and purpose of DQOs.

The EPA's DQO guidance document entitled, "Guidance for the Data Quality Objectives Process" (EPA QA/G-4, EPA/600/R-96/055, August 2000) should be used in the development of DQOs for this Site. This document describes the use of the DQO Process, a seven-step planning approach to develop sampling designs for data collection activities, in planning data collection efforts and development of an appropriate data collection design to support decision making. DQOs are qualitative and quantitative statements which are developed using the DQO process and that clarify study objectives and define the appropriate type of data. The DQO guidance document states that:

> "The final outcome of the DQO Process is a design for collecting data (e.g., the number of samples to collect, and when, where, and how to collect samples) together with limits on the probabilities of making decision errors.
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> . . . . . .
>
> The DQO Process should be used during the planning stage of any study that requires data collection, *before* the data are collected.
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> . . . . . .
>
> The seventh step [of the DQO Process] is used to develop a data collection design based on the criteria developed in the first six steps. In this step the planning team considers the final product of the DQO Process, a data collection design that meets the quantitative and qualitative needs of the study using a specified number of samples that can be accommodated by the budget available. The outputs of the DQO Process are used to develop a QA Project Plan . . . .
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> . . . . . .
>
> A data collection design specifies the number, location, physical quantity, and type of samples that should be collected to satisfy the DQOs. The sampling design designates where, when, and under what conditions samples should be collected; what variables are to be measured; and the QA [Quality Assurance] and QC [Quality Control] activities that will ensure that sampling design and

> measurement errors are managed sufficiently to meet the tolerable decision error rates specified in the DQOs. These QA and QC activities together with details of the data collection design are documented in the QA Project Plan.
>
> . . . . . .
>
> To assist the design team in their development of alternative designs and evaluation of costs for a few select sampling designs and operational decision rules, EPA has developed the software [among others], Data Quality Objectives Decision Error Feasibility Trials (DEFT) Software (EPA QA/G-4D, 1994 . . .). DEFT is a personal computer software package developed to assist your planning team in evaluating whether the DQOs are feasible (i.e., can be achieved within resource constraints) before the development of the final data collection design is started. DEFT uses the outputs generated in Steps 1 through 6 of the DQO Process to evaluate several basic data collection designs and determines the associated cost. DEFT presents the results in the form of a Decision Performance Goal Diagram that overlays the desired Decision Performance Curve of the sampling design.
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> . . . . . .
>
> For EPA programs, the operational requirements for implementing the data collection design [developed through the DQO Process] are documented in the Field Sampling Plan, Sampling and Analysis Plan, QA Project Plan . . . ."

The EPA's QAPP guidance document entitled, "Guidance for Quality Assurance Project Plans" (EPA QA/G-5, EPA/240/R-02/009, December 2002) states that:

> "The outputs from the Agency's [EPA's] recommended systematic planning process, the Data Quality Objectives (DQO) Process, are ideally suited to addressing the first component of this element [i.e., the QAPP component being the "outputs from the systematic planning process (e.g., DQOs) used to design the study, and the element being "Quality Objectives and Criteria for Measurement Data," both under Group A (Project Management) QAPP elements]."

E. Sampling Design

The "judgmental" sampling design for the soils, surface water, and sediments presented in NORCO's Draft WP and FSP significantly relied upon the known source areas identified in the HRS Documentation Record. The EPA agrees that a judgmental sampling design would be appropriate for the known source areas of contamination or "hot spots;" however, a judgmental sampling design alone does not meet the EPA's requirements for a well-developed sampling design that can be used to support human health and ecological risk assessments for this Site. A

well-developed sampling design plays a critical role in ensuring that data are of sufficient quantity and quality to reach the conclusions needed (e.g., to support a decision about whether contamination levels exceed a threshold of unacceptable risk), and are adequately representative of the target population and defensible for their intended use. To generate accurate information about the level of contamination in the environment, the representativeness of the data with respect to the objective(s) of the study must be considered. The following discussions clarify the intent and purpose of a well-developed sampling design.

Guidance on how to create sampling designs to collect environmental measurement data is provided in the EPA's sampling design guidance document entitled, "Guidance on Choosing a Sampling Design for Environmental Data Collection, for Use in Developing a Quality Assurance Project Plan" (EPA QA/G-5S, EPA/240/R-02/005, December 2002). The sampling design guidance document states that:

> "There are two main categories of sampling designs: probability-based designs and judgmental designs. Probability-based sampling designs apply sampling theory and involve random selection of sampling units. An essential feature of a probability-based sample is that each member of the population from which the sample was selected has a known probability of selection. When a probability-based design is used, statistical inferences [e.g., selection of the statistically-derived 95% Upper Confidence Limit of the arithmetic mean concentration in soil, surface water, and sediments as the Exposure Point Concentration, which is the concentration term in the intake equations in Superfund risk assessments] may be made about the sampled population from the data obtained from the sampling units. That is, when using a probabilistic design, inferences can be drawn about the sampled population, such as the concentration of fine particulate matter . . . in ambient air . . ., even though not every single 'piece' of the . . . air is sampled. Judgmental sampling designs involve the selection of sampling units on the basis of expert knowledge or professional judgment [i.e., known source areas of contamination or hot spots].
>
> . . . . . .
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> When using probabilistic sampling, the data analyst can draw quantitative conclusions about the sampled population. That is, in estimating a parameter (for example, the mean), the analyst can calculate a 95% confidence interval for the parameter of interest. If comparing this to a threshold, the analyst can state whether the data indicate that the concentration exceeds or is below the threshold with a certain level of confidence. Expert judgment is then used to draw conclusions about the target population based on the statistical findings about the sampled population.
>
> . . . . . .

> When using judgmental sampling, statistical analysis cannot be used to draw conclusions about the target population. Conclusions can only be drawn on the basis of professional judgment. The usefulness of judgmental sampling will depend on the study objectives, the study size and scope, and the degree of professional judgment available. When judgmental sampling is used, quantitative statements about the level of confidence in an estimate (such as confidence intervals) cannot be made."

The EPA's sampling design guidance document also discusses the Visual Sampling Plan (VSP), a software tool for selecting the right number and location of environmental samples so that the results of statistical tests performed on the data collected via the sampling plan have the required confidence needed for decision making. VSP supports the implementation of the DQO Process by visually displaying different sampling plans, linking them to the DQO Process [between Steps 6 and 7 of the process], and determining the optimal sampling specifications to protect against potential decision errors. The sampling design guidance states that:

> "A key goal of sampling design is to specify the sample size (number of samples) and sampling locations that will provide reliable information for a specific objective . . . at the least cost. VSP does these required calculations for sample size and sample location and outputs a sampling design that can be displayed in multiple formats."

The EPA's supplemental guidance document for calculating the concentration term entitled, "Supplemental Guidance to RAGS: Calculating the Concentration Term" (Publication 9285.7-081, May 1992) states that:

> "For Superfund assessments, the concentration term (C) in the intake equation is an estimate of the arithmetic average concentration for a contaminant based on a set of site sampling results. Because of the uncertainty associated with estimating the true average concentration at a site, the [statistically-derived] 95 percent upper confidence limit (UCL) of the arithmetic mean should be used for this variable. The 95 percent UCL provides reasonable confidence that the true site average will not be underestimated.
>
> . . . . . .
>
> The choice of the arithmetic mean concentration as the appropriate measure for estimating exposure derives from the need to estimate an individual's long-term average exposure."

The EPA's UCL exposure point concentration guidance document entitled, "Calculating the Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites" (OSWER 9285.6-10, December 2002) updates the May 1992 UCL guidance and provides alternative methods for calculating the 95% UCL. The statistical methods described in this guidance for calculating UCLs are based on the assumption of random sampling.

The EPA's human health risk assessment guidance document entitled, "Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual, Part A, Interim Final" (EPA/540/1-89/002, December 1989) states that:

> "There are three general strategies for establishing sample locations: (1) purposive [judgmental], (2) completely random, and (3) systematic. Various combinations of these general strategies are both possible and acceptable.
>
> . . . . . .
>
> Although areas of concern are established purposively (e.g., with the intention of identifying contamination), the sampling locations within the areas of concern generally should not be sampled purposively if the data are to be used to provide defensible information for a risk assessment. Purposively identified sampling locations are not discouraged if the objective is site characterization, conducting a chemical inventory, or the evaluation of visually obvious contamination. The sampling results, however, may overestimate [i.e., perform a remedial action when the action is not warranted] or underestimate [i.e., a remedial action is not performed while site contaminants pose a risk to human health and/or the environment] the true conditions at the site depending on the strategies of the sampling team. Due to the bias associated with the samples, data from purposively identified sampling locations generally should not be modeled and used to estimate other relevant statistics. After areas of concern have been established purposively, ground-water monitoring well locations, continuous air monitor locations, and soil sample locations should be determined randomly or systematically within the areas of concern.
>
> Random sampling involves selecting sampling locations in an unbiased manner. Although the investigator may have chosen the area of concern purposively, the location of random sampling points within the area should be independent of the investigator (i.e., unbiased). In addition, the sampling points should be independent of each other; that is, it should not be possible to predict the location of one sampling point based on the location of others. Random sampling points can be established by choosing a series of pairs of random numbers that can be mapped onto a coordinate system that has been established for each area of concern.

. . . . . .

> Systematic sample locations are established across an area of concern by laying out a grid of sampling locations that follow a regular pattern. Systematic sampling ensures that the sampling effort across the area of concern is uniform and that samples are collected in each area. The sampling location grid should be determined by randomly identifying a single location from which the grid is constructed. If such a random component is not introduced, the sample is essentially purposive. The grid can be formed in several patterns including square, rectangular, triangular, or hexagonal, depending on the shape of the area. A square pattern is often the simplest to establish. Systematic sampling is preferable to other types of sampling if the objective is to search for small areas with elevated concentrations.

. . . . . .

> Actions at Superfund sites should be based on an estimate of the reasonable maximum exposure (RME) expected to occur under both current and future land-use conditions. The reasonable maximum exposure is defined here as the highest exposure that is reasonably expected to occur at a site. RMEs are estimated for individual pathways. If a population is exposed via more than one pathway, the combination of exposures across pathways also must represent an RME."

The EPA's data useability guidance document entitled, "Guidance on Data Useability in Risk Assessment, Part A, Final" (Publication 9285.7-09A, PB92-963356, April 1992) provides data users with a nationally consistent basis for making decisions about the minimum quality and quantity of environmental analytical data that are sufficient to support Superfund risk assessment decisions. This guidance document also discusses the applicability of random sampling designs in providing unbiased estimates of chemical occurrence and concentration useful in calculating the RME.

F. Designation of Operable Units

The designation of "Operable Units" (OU) may be appropriate for this Site, depending on the outcome of the DQO Process and other factors, as discrete actions that comprise an incremental step toward comprehensively addressing the distinct geographical portions and the different media (soil, ground water, surface water, and sediments) that are possibly affected by the Site and prioritizing the removal and remedial actions. The following discussions clarify the intent and purpose of OUs.

OUs are described in the NCP (Final Rule; Federal Register, Volume 55, Issue 46, Page 8666; March 8, 1990). OUs may be actions that completely address a geographical portion of a site or a specific site problem (e.g., drums and tanks, contaminated ground water) or the entire site.

The EPA's Record of Decision (ROD) guidance document entitled, "A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents" (EPA 5-10-R-98-031, July 1999) states that:

> "An RI/FS can be performed on the site as a whole, or for a particular portion of the site. The NCP defines an operable unit (OU) as a discrete action that comprises an incremental step toward comprehensively addressing site problems. Hence, an operable unit can be a certain geographic portion of a site or can address an environmental medium at the site (e.g., ground water, soil)."

G. Potentially Responsible Party

NORCO stated in the RI/FS deliverables that they never operated the facility or spilled any materials. Although Paragraph 12 of the AOC states that, "The Respondent never operated the refinery," this statement does not relieve NORCO of their responsibility as a PRP to address all contamination "at" or "from" the Site. The following discussions, including those in General Comment A (Key Definitions - Potentially Responsible Party), clarify the meaning of a PRP and NORCO's responsibilities in accordance with the AOC.

The EPA's PRP search manual entitled, "PRP Search Manual" (Office of Enforcement and Compliance Assurance, September 2003) states that:

> "CERCLA section 107(a)(1) imposes liability on the present owner(s) and operator(s) of a vessel or facility from which there has been a release of a hazardous substance, even if they did not own or operate the facility at the time of disposal of hazardous substances. The term 'owner or operator' is defined in section 101(20), and has been interpreted broadly by courts to include almost any person who has an ownership interest in or the ability to manage or control a business."

The EPA's RI/FS oversight guidance document entitled, "Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies, Final, Volume 1" (EPA/540/G-91/010a, OSWER Directive 9835.1c, July 1991) states that:

> "The purpose of [EPA's] oversight is to ensure that an RI/FS prepared by a PRP in an enforcement-lead response action is equivalent to the RI/FS that EPA would have prepared if the site were fund-lead.

. . . . . .

> A PRP-lead RI/FS must be as comprehensive as a federally funded RI/FS and must be of comparable quality."

H. Superfund Alternative Sites

The principle of Superfund alternative response actions is to provide the same level of investigation and cleanup as if the Site were on the NPL. The following discussions clarify the intent and purpose of NORCO's "Superfund alternative site designation."

Paragraph 4 of the AOC states that:

> "NORCO and EPA agree that this Site was proposed for listing by the EPA on the National Priorities List ("NPL") on September 5, 2002 (67 Federal Register 56794), and may be eligible to be placed on a final NPL. EPA agrees to suspend the listing of this site on a final NPL and NORCO agrees that EPA will suspend the listing of this site on a final NPL so long as NORCO undertakes the actions equivalent to those required at NPL sites in accordance with the terms and conditions of this Order [AOC] and the EPA's memorandum addressing alternative sites ("Response Selection and Enforcement Approach for Superfund Alternative Sites," June 24, 2002; OSWER 92-08.0-17 [Superfund Alternative Sites Guidance])."

The EPA's alternative sites memorandum entitled, "Response Selection and Enforcement Approach for Superfund Alternative Sites" (OSWER 92-08.0-17; June 24, 2002) states that:

> "As in the case of NPL sites, EPA will:
>
> . . . . . .
>
> Prepare an RI/FS and a Record of Decision ('ROD') that documents the final cleanup decision (NCP §300.430 (d), (e), and (f)).
>
> Select and attain Applicable or Relevant and Appropriate Requirements ('ARARs'). Superfund Alternative sites should attain the same cleanup standards as NPL sites (CERCLA § 121 and the NCP, §300.430).
>
> . . . . . .
>
> Ensure a complete cleanup in accordance with NCP standards.

> Certify that the work is complete and that performance standards have been attained at Superfund Alternative sites using the same process used for NPL sites.
>
> . . . . . .
>
> The principle of Superfund Alternative response action[s] is to provide the same level of cleanup as if the site was listed on the NPL. Superfund Alternative sites should attain these same NCP cleanup standards."

The EPA's revised alternative sites memorandum entitled, "Revised Response Selection and Enforcement Approach for Superfund Alternative Sites" (OSWER 9208.0-18; June 17, 2004) generally includes the initial statements of the previous alternative sites memorandum and also states that:

> "Regions [EPA] should follow practices normally employed at NPL sites, while also taking steps to ensure equivalency in the absence of an NPL listing."

I. Documentation of Hazardous Substances and Contaminant Releases to the Environment

Attachment A (Documentation of Hazardous Substances and Contaminant Releases to the Environment [on compact disk]) of the EPA's comments is comprised of the documentation related to the Site's hazardous substances and the known on- and off-site contaminant releases to the environment. These documents were compiled from Federal and State sources.

Reference "numbers" correspond to the reference numbers used in the HRS Documentation Record for the Site. Reference "letters" are used for references not included in the HRS Documentation Record. Although additional documentation of the Site's hazardous substances and known contaminant releases to the environment is included in the HRS Documentation Record, the documentation in Attachment A is specifically being provided as a reference to the EPA's comments on the Draft WP and FSP. Following is a summary of the documentation included in Attachment A.

Reference 9

Reference 9 (Texas Water Commission Solid Waste Compliance Monitoring Inspection Report, 6/05/86) states that:

> "The company disposed of cooling tower sludges on-site [near the plant refuse disposal area] which contain high levels of chromium. No runoff controls are provided. Additionally, there are some drums which have leaked unknown materials onto the ground.

. . . . . .

> The company does not have a designated drum storage area . . . .

. . . . . .

> South of the cooling tower sludge disposal area there was a substantial quantity of what appeared to be general refuse, empty drums, ...

. . . . . .

> During December 1985 the refinery made a 100,000 barrels run of slop oil which generated a substantial amount of very odorous wastewater. The refinery's wastewater treatment system was inoperable during this run. The refinery . . . ultimately discharged the untreated wastewater into sandy, unlined containment structures [fire walls]."

Reference 10

Reference 10 (EPA Potential Hazardous Waste Site, Site Inspection Report, 12/14/87) proposes a sampling location in a nearby residential area located immediately northeast of the refinery (Sample Location #9, Soil from Sinkhole at . . . Residence). The report states that:

> "Local resident . . ., who lives on Bishop Road adjacent to the site, reported that her son fell into a 'sinkhole' associated with a Falcon Pipeline on her property and was covered with an oily sludge."

The report also states that:

> "Records indicate that a substantial amount of waste from 104,000 bbl of a material received from Tenneco in January 1986 remains in the pipelines and tanks. . . . noxious odor complaints . . . began when Falcon started processing this material . . . . Mr. Tom Palmer of TACB has concluded that the Tenneco material was not virgin petroleum, but a mixture of organic solvents and is probably waste. TACB analytical results from a sample of material taken from a tank on 1-13-87 [1-13-86] support this assumption.

. . . . . .

> There is evidence of runoff and breaks in the integrity of the dikes surrounding the tanks [Photos #9-12, near Tanks 26 and 27 located immediately adjacent to the wetland area, show the integrity of the dikes]."

Reference 25

Reference 25 (Letter from TNRCC to Mr. Richard Bergner; 2/23/96) states that:

> "On February 16 and 19, 1996, representatives from the . . . (TNRCC) Region 14 conducted an inspection of the . . . (NORCO) facility in Ingleside. . . . The inspection [inventory of the tank contents] was conducted in response to an alleged crude oil pipeline spill from the facility on November 15, 1995. Analysis of the spilled residual [References 25 and 35] reveals constituents not naturally occurring in crude oil."

The spilled residuals referenced in References 25 and 35 (Letter from TNRCC to MJP Resources Inc., 3/01/96) refer to the analytical data provided in Reference 35. The TNRCC did perform an inventory of the tank contents on February 16 and 19, 1996. These data are provided in Reference 31 of the HRS Documentation Record.

Reference 30

Reference 30 (Memorandum from EPA's Region 6 Lab to the Office of Criminal Investigation, 3/27/96) provides the analytical results of the samples taken from Tanks N1 and N2 on February 15, 1996. Vinyl acetate, not naturally occurring in crude oil, was detected at concentrations of 1,360 milligrams/liter (mg/l) and 36,600 mg/l in Tanks N1 and N2, respectively.

Reference 33

Reference 33 (TNRCC, Oil or Hazardous Substances Discharge or Spill or Air Release Report; 11/15/95 [reported], 11/16/95 [date of report]) is a report documenting a 11/15/95 spill from a pipeline, operated by MJP Resources Inc., approximately one mile south southeast of FM 2725 on Bishop Road and adjacent to the Brown and Root Facility in a wetland area. The spill area is located outside of the fenced boundaries of the facility between Bishop Road and Sunray Road and north of Bay Avenue.

Reference 34

Reference 34 (Telephone Memo to the File, From TNRCC to the Texas Railroad Commission [RRC]; 2/23/96) provides notification to the RRC that the spill that occurred from the MJP Resources pipeline (Reference 33) is under the jurisdiction of the TNRCC, based on analyses of the samples collected at the spill site. The analyses indicate the presence of substances other than those naturally occurring in crude oil. The spill area is located outside of the fenced boundaries of the facility between Bishop Road and Sunray Road and north of Bay Avenue.

Reference 35

Reference 35 (Letter from TNRCC to MJP Resources Inc., 3/01/96) states that:

> "On November 15, 1995, a release from the MJP Resources Inc. Pipeline between Sunray and Bishop Roads was inspected by . . . [TNRCC] staff. . . . Analyses of samples collected in the spill area indicate constituents not normally found in crude oil were released during the spill event. Based on this information, it appears that the spill will have to be remediated under TNRCC guidance . . . ."

Reference 45

Reference 45 (Interoffice Memorandum, Texas Department of Water Resources, Reference a Temporary Pond to Store Treated Effluent [Permit 02142], 7/02/79) states that:

> "On June 17, 1979, . . . [he] called me and requested that I inspect the pond before they started using it. He said they had uncovered some oily ground.
>
> . . . . . .
>
> Close inspection revealed the discoloration to be from oil. In one instance, several ounces of oil had seeped to the surface and ponded. There was also oily trash."

This temporary pond was located in the same general vicinity as the surface impoundment associated with the wastewater treatment system and immediately adjacent to the wetland area within the fenced boundaries of the facility. This wetland area drains into the wetland area across Bishop Road outside of the fenced boundaries of the facility.

Reference 46

Reference 46 (Investigation Form, Texas Air Control Board, 4/13/87) states that:

> "Upon investigation of the area within the refinery's tank farm, . . . [the investigators] noted a black, liquid substance beneath a pipeline rack on the north side of the refinery. The pipeline runs parallel to Bishop Road within the refinery fence line. Upon further investigation, we [the investigators] noted a leak in the third pipeline (10-inch diameter) pipe from Bishop Road. The black, thin liquid appeared to be either a solvent with hydrocarbon/carbon or a crude oil with solvents intermixed."

A bulldozer was used to cover this spill area. The area of the spill is in the immediate vicinity of a drainage pathway to the on- and off-site wetland areas of the facility.

Reference 58

Reference 58 (Interoffice Memorandum, Texas Water Commission, 1/14/86) states that:

> "The company's [ARM Refining Company] operation now consists of reclaiming waste oil from drilling site pond skim and used lubrication oil from various sources.
>
> . . . . . .
>
> A follow-up inspection on December 11, 1985, . . . resulted in documenting an oil spill from an ARM pipeline which caused pollution to the surface waters [the wetland area within the fenced boundaries of the facility] of the State."

This spill impacted the wetland area within the fenced boundaries of the facility. This wetland area drains into the wetland area across Bishop Road outside of the fenced boundaries of the facility.

Reference A

Reference A (Texas Parks and Wildlife Department; Fish Kill/Pollution Complaint Detailed Report; Start Date, 11/14/95) describes a pipeline spill by MJP Resources. This spill occurred outside of the fenced boundaries of the facility in a marsh area between Bishop Road and Sunray Road and north of Bay Avenue. References 25, 34, and 35 indicate that the samples collected and analyzed from the spill site indicate the presence of substances other than those naturally occurring in crude oil.

Reference B

Reference B (Texas Parks and Wildlife Department; Fish Kill/Pollution Complaint Detailed Report; Start Date, 04/16/02) describes a pipeline spill on land adjacent to a wetland. This area is located outside of the fenced boundaries of the facility, east of the intersection of Bay Avenue and Sunray Road. References C (Railroad Commission of Texas, Inspection Report, Initial Report dated 4/05/02) and D (TCEQ; Notice of Referral for the Hydrocarbon Release at Offshore Specialty Fabricators; 802 Sunray Road, Ingleside [San Patricio County], Texas; 9/09/02) provide additional information concerning this spill.

Reference C

Reference C (Railroad Commission of Texas, Inspection Report, Initial Report dated 4/05/02) consists of several reports concerning the spill described in References B, D (TCEQ; Notice of Referral for the Hydrocarbon Release at Offshore Specialty Fabricators; 802 Sunray Road, Ingleside [San Patricio County], Texas; 9/09/02), and E (Photos Taken by the U.S. Fish and Wildlife Service on 9/18/02). An analyses of the hydrocarbons in the wetland area of the pipeline spill revealed the presence of vinyl acetate. The reporting units documented in the analytical reports may be a lab error and, without access to the Quality Assurance Reports, the EPA believes that the correct reporting units for the vinyl acetate should be reported in liters. Jurisdiction of the spill was later transferred to the TNRCC because of the presence of constituents not naturally occurring in crude oil.

Reference D

Reference D (TCEQ; Notice of Referral for the Hydrocarbon Release at Offshore Specialty Fabricators; 802 Sunray Road, Ingleside [San Patricio County], Texas; 9/09/02) states that because impact to the ground water has been documented and this incident [pipeline spill] may be a result of historical contamination, the spill has been referred to the Remediation Division's Corrective Action Section for oversight. Reference D also contains specific documentation of the pipeline spill and acknowledges that the spilled materials contained constituents other than those naturally occurring in crude oil. The reports described the impacts to the adjacent wetland areas. References B, C, and E (Photos Taken by the U.S. Fish and Wildlife Service on 9/18/02) provide additional information concerning this spill. A telephone memorandum (dated 9/10/02) suggests that the pipeline spill could have been attributed to the opening of valves at the NORCO facility.

Reference E

Reference E (Photograph Taken by the U.S. Fish and Wildlife Service on 9/18/02) provides a photograph of the spill area discussed in References B, C, and D. This photograph shows the number of pipelines uncovered during the excavations at the wetland area and the immediate proximity of surface water. The facility can be seen in the upper left-hand corner of the photograph.

Reference F

Reference F (Texas Parks and Wildlife Department; Fish Kill/Pollution Complaint Detailed Report; Start Date, 09/20/02) describes an oil spill from a storage tank (Tank #7, North Site). The report states that oil ran over the road (beyond the fenced boundaries of the facility) and entered a flood ditch.

Reference G

Reference G (TNRCC, Oil and Hazardous Substances Spill or Discharge Report, 9/20/02) consists of various reports and photographs of the tank leak described in Reference F. Photograph #3 depicts the spilled liquids located outside of the fenced boundaries of the facility.

Reference H

Reference H (Photograph Taken by TCEQ on 7/07/04) provides a photograph of Tank #27. This tank was leaking at the time of the site visit. The photograph shows the staining and free liquids within the bermed area, which appeared to have recently been amended with soil. This tank is located immediately adjacent to the wetland area within the fenced boundaries of the facility. This wetland area drains into the wetland area across Bishop Road outside of the fenced boundaries of the facility.

Reference I

Reference I (Monthly Report of the EPA's Activities Concerning the CIP [Community Involvement Plan], 10/19/04) provides the EPA's monthly report of activities concerning the CIP. This report was submitted to NORCO pursuant to Task 5 (CIP), Paragraph 24, of the RI/FS SOW. This report summarizes, among other activities, the EPA's interviews with local residents which have historically and recently raised concerns about their residential soils.

J. Preparation of the Proposed Plan and Record of Decision

The RI/FS for this Site must be conducted in a manner that allows the EPA to meet its statutory and regulatory responsibilities for the preparation of the Proposed Plan and Record of Decision (ROD) for the Site. Additionally, each final deliverable must be easily incorporated into these decision documents. The following discussions clarify the EPA's requirements for the Proposed Plan and ROD.

Paragraph 8 of the AOC states that:

> "The activities conducted under this Order are subject to approval by EPA and shall provide all appropriate necessary information for the RI/FS, and for a Record of Decision (ROD) that is consistent with CERCLA and the National Contingency Plan (NCP), 40 C.F.R. 300. The activities conducted under this Order shall be conducted in compliance with all applicable EPA guidance documents, policies, and procedures."

Paragraph 48 of the AOC states that:

> "EPA retains the responsibility for the approval and release to the public of the RI/FS Report. EPA retains responsibility for the preparation and release to the public of the Proposed Plan and Record of Decision (ROD) in accordance with CERCLA and the NCP."

The EPA's ROD guidance document entitled, "A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents" (Office of Solid Waste and Emergency Response, EPA 540-R-98-031, July 1999) states that:

> "The decision documents addressed by this guidance are the Proposed Plan, the Record of Decision (ROD), ... Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), requires the issuance of decision documents for remedial actions taken pursuant to Sections 104, 106, 120, and 122. Sections 300.430(f)(2), 300.430(f)(4) and 300.435(c)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establish the regulatory requirements for these decision documents. This guidance document provides additional guidelines and is based upon the Superfund statute and regulations.
>
> . . . . . .
>
> A primary purpose of the ROD guidance is to establish a recommended format for Proposed Plans, RODs, ... Because of the critical role of public participation in the remedy selection process, and the public's reliance on decision documents to understand what the lead government agency proposes and ultimately decides to do, clarity within and consistency across these documents are both important."

K. References to the Many Diversified Interests, Inc. Superfund Site

RI/FS documentation pertaining to the Many Diversified Interests, Inc. Superfund Site (hereinafter the "MDI Site"), located in Houston, Texas, is referenced in the EPA's comments concerning NORCO's deliverables. The MDI Site documentation, which is being provided as an example of a federally funded RI/FS, includes deliverables (Attachment B - Many Diversified Interests, Inc. Superfund Site; Houston, Texas; Field Sampling Plan and Quality Assurance Project Plan [on compact disk]) that have been approved by the EPA. Each final MDI RI/FS deliverable was easily incorporated into the Proposed Plan and ROD for the MDI Site and allowed the EPA to meet its statutory and regulatory responsibilities for these decision documents. The MDI deliverables were prepared by the EPA's contractor along with technical

direction from the MDI Site's Remedial Project Managers (RPMs). General Comments G (Potentially Responsible Party) and J (Preparation of the Proposed Plan and Record of Decision) provide additional discussions concerning these comments.

Deliverable-Specific Comments
Draft Remedial Investigation and Feasibility Study Work Plan

The following "Deliverable-Specific Comments" pertain to the EPA's comments on the Draft WP. The deliverable-specific comments are listed numerically by the sections, pages, and paragraphs (except Deliverable-Specific Comments 1 and 2) corresponding to the Draft WP required pursuant to the AOC. A paragraph number corresponds to the sequence of a paragraph within a section.

1. Required Statement for Major Deliverables

The Draft WP submitted by NORCO does not include the required certified statement. Paragraph 30 of the AOC requires that all major deliverables contain the following statement, which should be signed by a responsible corporate official or by NORCO's Project Coordinator. Paragraph 70 of the AOC identifies an original and any revised work plan as a major deliverable. The Amended Draft WP should include the following statement:

> "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

2. Preliminary Site Characterization Summary Report

The Draft WP does not address the submittal of a Preliminary Site Characterization Summary Report as specified in the RI/FS Statement of Work (SOW). The report is, however, included in the Project Schedule of Appendix C of the Draft WP. The schedule presented in Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW should be reflected in the Project Schedule of Appendix C of the Amended Draft WP. The Amended Draft WP should state, in an appropriate section, that:

> "A Draft Preliminary Site Characterization Summary (PSCS) Report will be submitted to the EPA for review and approval according to the schedule in the Final RI/FS WP. An Amended Draft PSCS Report will be submitted to the EPA for review within 30 calendar days of the receipt of the EPA's comments on the Draft PSCS Report. A Final PSCS Report will be submitted to the EPA for review and approval within 14 calendar days of the receipt of the EPA's comments on the Amended Draft PSCS Report."

3. Section 1.0 - Introduction (Page 1, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "The RI/FS is primarily designed to address all contamination at the Falcon Refinery (Site) resulting from hazardous substances present at the site, to evaluate the potential risk to human health and the environment and to develop and evaluate potential remedial alternatives."

EPA's Comments

The Amended Draft WP should revised to include the text of Paragraph 7 of the AOC. Paragraph 7 states that:

> "The objectives of the RI/FS are: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a Remedial Investigation; (b) to determine whether Remedial Action is necessary by conducting a Baseline Risk Assessment; and (c) to evaluate alternatives for Remedial Action, if any, to prevent, mitigate or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site or facility, by conducting a Feasibility Study."

4. Section 2.0 - Site Background and Setting (Page 2, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> "The site . . . is located 1.7 miles southeast of State Highway 361 on FM 2725 at the north and south corners of FM 2725 and Bishop Road (Figure 1, Area Map)."

EPA's Comments

Figure 1 of the Amended Draft WP should be enlarged and should depict State Highway 361 and FM 2725. Figure 1 should also include a north arrow and define the abbreviation "NTS" as "Not to Scale." General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

Draft Work Plan

The Draft WP states that:

> "Another portion of the site includes a dock facility on Redfish Bay where materials are transferred between barges and storage tanks."

EPA's Comments

The Amended Draft WP should be revised to state that:

> "Other portions of the Site include piping leading from the Site (North and South Sites) to dock facilities on Redfish Bay where materials were historically and are currently transferred between barges and storage tanks, and any other area where contamination attributed to the Site has come to be located."

General Comments A (Key Definitions ["Facility" and "Release"]), B (Facility [Site] Boundaries), and J (Preparation of the Proposed Plan and Record of Decision) provide the EPA's discussions concerning these comments.

5. Section 2.1 - Site History (Pages 2 and 3, 1st and 5th Paragraphs)

Draft Work Plan

This section of the Draft WP provides a brief history of the Site, identifies Figure 2 (Site Map), and states that:

> "NORCO never operated the facility or spilled any materials."

EPA's Comments

The Amended Draft WP should include a discussion of all the known activities that have occurred at the Site, in addition to the refinery operations and crude oil storage which have already been discussed in the Draft WP. Figure 2 of the of the Amended Draft WP should be enlarged, labeled correctly as "Overall Site Map," and should depict FM 2725, Bishop Road, Bay Avenue, and Sunray Road. This figure should also identify the North and South Sites; the residential areas located immediately adjacent to the facility; the industries or commercial entities located in the general vicinity of the facility; the wetland areas located south, southeast, and east of the facility (including the wetland areas located north of Sunray Road); the historical and current docking facilities on Redfish Bay; the entire length of the pipelines leading from the North Site to the historical and current docking facilities; and the historical wastewater discharge outfall point into Corpus Christi Bay. General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

The statement in the Draft WP that NORCO never operated the facility or spilled any materials should be excluded from the Amended Draft WP. Although Paragraph 12 of the AOC states that, "The Respondent never operated the refinery," this statement does not relieve NORCO of their responsibility as a PRP to address all contamination "at" or "from" the Site. This statement has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. General Comments A (Key Definitions ["Potentially Responsible Party"]) and G (Potentially Responsible Party) provide the EPA's discussions concerning these comments.

6. Section 2.2.1 - Site Physical Characteristics (Page 3, 3rd Paragraph; and Page 4, 5th and 6th Paragraphs)

Draft Work Plan

The Draft WP states that:

> "When the site was unlocked the neighbors poured used motor oil around this tank."

EPA's Comments

The statement concerning neighbors has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. General Comments A (Key Definitions ["Potentially Responsible Party"]) and G (Potentially Responsible Party) provide the EPA's discussions concerning these comments. This statement should be revised in the Amended Draft WP to state that:

> "It appears that used motor oil was poured around this tank."

Draft Work Plan

The Draft WP states that:

> "Two additional tanks N1 and N2 were also used to store product . . . ."

EPA's Comments

The Amended Draft WP should be revised to identify tanks N1 and N2 in an appropriate map such as Figure 2 (Overall Site Map) or Figure 4 (South Site Map). General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments. This statement should be revised in the Amended Draft WP to state that:

> "Two additional tanks, N1 and N2 were also used to store product, including CERCLA hazardous substances, ..."

Draft Work Plan

The Draft WP states that:

> "The discharge was covered under Permit 02142 until the NPDES permit was received."

EPA's Comments

The Amended Draft WP should include a map that depicts the wastewater discharge outfall point(s) for the historical wastewater discharges covered under Permit 02142, or other permit, and the National Pollutant Discharge Elimination System Permit(s). In an appropriate section, the Amended Draft WP should include a discussion, including documentation, of the facility's historical compliance with permit requirements and effluent limitations. General Comments A (Key Definitions), B (Facility [Site] Boundaries), G (Potentially Responsible Party), I (Documentation of Hazardous Substances and Contaminant Releases to the Environment), and J (Preparation of the Proposed Plan and Record of Decision) provide the EPA's discussions concerning these comments.

7. ***Section 2.2.1.2 - Geology (Page 4, 2nd Paragraph)***

Draft Work Plan

The Draft WP states that:

> "Since groundwater is detected at depths typically less than eight feet at an adjacent facility, the depth of any impacts to soil from hydrocarbon constituents will likely be minimal. As a result a detailed discussion of the geology is not warranted."

EPA's Comments

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall gather existing information regarding geology, hydrogeology, hydrology . . . of the Site."

The Amended Draft WP should exclude the statements that any impacts to soil from hydrocarbon constituents will likely be minimal, and that a detailed discussion of the geology is not warranted. Any impacts to the soil, sediment, ground water, and surface water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. Additionally, the Amended Draft WP should include a detailed discussion of the known geology, hydrogeology, and hydrology of the Site and the area in the general vicinity. This information is required at this stage in the RI/FS process to ensure that any usable sources of ground water and currently usable ground water are identified, and could possibly be or are being impacted by hazardous substances. The water-table aquifer beneath the Site will also need to be classified for its water resource potential under Federal and State rules and regulations. Any impacts to the water-table aquifer, identified during the RI/FS, will require an investigation of the next deeper water-bearing zone.

8. Section 2.2.1.3 - Soil and Vadose Zone (Page 4, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "Little specific information exists about the shallow soil and the vadose zone."

EPA's Comments

The Amended Draft WP should be revised to include general information that is likely available and describes or classifies the soils present at the facility or in the general vicinity. This information is readily available from Federal and State agencies, such as the U.S. Geological Survey and/or agricultural extension offices.

9. Section 2.2.1.4 - Surface Water Hydrology (Pages 5-8)

Draft Work Plan

The Draft WP states that:

> "The remainder of the section on Surface Water Hydrology is taken directly from the Expanded Site Inspection Workplan, which was published by the TNRCC in cooperation with the EPA in June 2000."

EPA's Comments

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall gather existing information regarding . . . hydrology . . . of the Site."

The Amended Draft WP should exclude the remainder of the section (including the related figures) which discusses the information on surface water hydrology taken directly from the Expanded Site Inspection Work Plan, which is relevant to the HRS Documentation Record for the Site. This section of the Amended Draft WP should include detailed discussions of the surface water hydrology in the general vicinity of the Site, such as, the wetland areas located south, southeast, and east of the facility; Redfish Bay; and Corpus Christi Bay. General Comments C (Hazard Ranking System Documentation Record) and J (Preparation of the Proposed Plan and Record of Decision) provide the EPA's discussions concerning these comments.

10. Section 2.2.1.6 - Human Population and Land Use (Page 8, 1st and 2nd Paragraphs)

Draft Work Plan

The Draft WP identifies Figure 6 (Adjacent Properties Map) and states that:

> "A one-mile radius water well search was performed and the report is provided in Appendix A. Information in the water well search indicates that there are two registered water wells on Thayer Road, which is adjacent to the refinery (Figure 7). . . . No other registered water wells are within a distance that warrants evaluation in this RI/FS work plan."

EPA's Comments

A separate section should be included in the Amended Draft WP that discusses the water wells present near the Site and water resource uses. This section should be entitled, "Ground Water and Surface Water Resources and Uses." The text "Figure 7" should be removed from Figure 6 in the Amended Draft WP. Figure 7 should be entitled "Map of Water Wells Within One Mile Radius of the Site." Figure 7 should be revised, or another figure included in the Amended Draft WP, since the legend and map symbols are difficult to read, even in electronic format. Appendix A (One Mile Water Well Search) and Figure 7 should be revised to state that the Map ID numbers provided in Appendix A correspond to the numbers depicted in Figure 7. General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall gather existing information regarding geology, hydrogeology . . . of the Site."

. . . . . .

> "The Respondent shall gather existing data which identifies and locates residential, municipal, or industrial wells on and near the Site. The Respondent shall gather existing data which identifies surface water uses for areas surrounding the Site including, but not limited to, downstream of the Site."

The statement in the Draft WP that no other wells are within a distance that warrants evaluation in this RI/FS WP should be excluded from the Amended Draft WP. The EPA, during community interviews, determined the existence of three (3) water wells, relatively adjacent to the Site, that are not depicted in Figure 7 nor Appendix A. These domestic water wells are located at 113 Thayer Circle, Rt. 1 Box 481-I (this water well is reportedly a current source of potable water); 1233 Bishop Road; and 1269 Bishop Road. Figure 7 should depict the location of these water wells and the Amended Draft WP should include any available drilling and completion information. General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments. Attachment A (Documentation of Hazardous Substances and Contaminant Releases to the Environment [on compact disk], [Reference I - Monthly Report of the EPA's Activities Concerning the CIP, 10/19/04]) provides additional information concerning these comments.

This section, or another section, of the Amended Draft WP should discuss the current and reasonably anticipated future land use(s) for the Site. The EPA's land use directive entitled "Land Use in the CERCLA Remedy Selection Process" (OSWER Directive No. 9355.7-04, May 25, 1995) states that:

> "Discussions with local land use planning authorities, appropriate officials, and the public, as appropriate, should be conducted as early as possible in the scoping phase of the Remedial Investigation/Feasibility Study (RI/FS). This will assist EPA in understanding the reasonably anticipated future uses of the land on which the Superfund site is located.
>
> . . . . . .
>
> Land use assumptions affect the exposure pathways that are evaluated in the baseline risk assessment. Current land use is critical in determining whether there is a current risk associated with a Superfund site, and future land use is important in estimating potential future threats. The results of the risk assessment aid in determining the degree of remediation necessary to ensure long-term protection at NPL sites.
>
> . . . . . .

This directive expands on discussions provided in the preamble to the National Oil and Hazardous Substance Contingency Plan (NCP); 'Risk Assessment Guidance for superfund Vol. I, Human Health Evaluation Manual' (Part A) (EPA/540/1-89/002, Dec. 1989); 'Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA' (OSWER Directive 9355.3-01, Oct. 1988); and . . .

This land use directive may have the most relevance in situations where surface soil is the primary exposure pathway. Generally, where soil contamination is impacting ground water, protection of the ground water may drive soil cleanup levels. Consideration of future ground water use for CERCLA sites is not addressed in this document. There are separate expectations established for ground water in the NCP rule section 300.430 (a) (1) (iii) (F) that EPA expects to return usable ground waters to their beneficial uses wherever practicable, within a timeframe that is reasonable given the particular circumstances of the site.

This directive has two primary objectives. First, this directive promotes early discussions with local land use planning authorities, local officials, and the public regarding reasonably anticipated future uses of the property on which an NPL site is located. Second, this directive promotes the use of that information to formulate realistic assumptions regarding future land use and clarifies how these assumptions fit in and influence the baseline risk assessment, the development of alternatives, and the CERCLA remedy selection process.

. . . . . .

The baseline risk assessment generally needs only to consider the reasonably anticipated future land use; however, it may be valuable to evaluate risks associated with other land uses. The NCP preamble (55 Fed. Reg. 8710) states that, in the baseline risk assessment, more than one future land use assumption may be considered when decision makers wish to understand the implications of unexpected exposures. Especially where there is some uncertainty regarding the anticipated future land use it may be useful to compare the potential risks associated with several land use scenarios to estimate the impact on human health and the environment should the land use unexpectedly change. The magnitude of such potential impacts may be an important consideration in determining whether and how institutional controls should be used to restrict future uses. If the baseline risk assessment evaluates a future use under which exposure is limited, it will not serve the traditional role, evaluating a "no action" scenario. A remedy, i.e. institutional controls to limit future exposure, will be required to protect human health and the environment. In addition to analyzing human health exposure scenarios associated with certain land uses, ecological exposures may also need to be considered."

The EPA recommends that residential, commercial/industrial, and recreational scenarios be considered during the implementation of this RI/FS and in the calculation of risk at the Site. Screening levels should be based on each of these scenarios and each respective exposure pathway. Of course, this does not mean that the Site would be cleaned up, if necessary, to residential standards. Cleanup to a residential standard would allow unrestricted use of the Site. Cleanup to an industrial standard would require the necessary institutional controls (i.e., deed restrictions) in the Record of Decision for the Site. However, the baseline risk assessment may determine that an industrial standard may also be protective under a residential scenario, and the final remedy selected for the Site would not require institutional controls. NORCO should continue discussions with the EPA concerning the reasonably anticipated future land use(s) for the Site. General Comments J (Preparation of the Proposed Plan and Record of Decision) and K (References to the Many Diversified Interests, Inc., Superfund Site) provide the EPA's discussions concerning these comments.

11. Section 2.2.1.7 - Ecological Investigations (Pages 8 and 9, 1st and 3rd Paragraphs)

Draft Work Plan

The Draft WP states that:

> "During the development of the Hazardous Ranking System Documentation Record (HRS) for the Falcon Refinery the Texas Natural Resources Conservation Commission (TNRCC) conducted a sediment sampling program to determine if the wetlands adjacent to the facility had been impacted."

EPA's Comments

This section of the Amended Draft WP should be entitled, "Endangered and Threatened Species." The statement concerning the HRS sediment sampling program should be excluded from the Amended Draft WP, or revised to indicate that the sediment sampling program was designed for purposes of the HRS. Impacts to the sediments and wetlands located to the south, southeast, and east of the facility will be determined during the RI/FS for the Site. General Comments A (Key Definitions), B (Facility [Site] Boundaries), C (Hazard Ranking System Documentation Record), H (Superfund Alternative Sites), I (Documentation of Hazardous Substances and Contaminant Releases to the Environment), and J (Preparation of the Proposed Plan and Record of Decision) provide the EPA's discussion concerning these comments.

Draft Work Plan

The Draft WP states that:

"The 15-mile in-water segment of the Surface Water Pathway extends into the Redfish Bay (designated also as Corpus Christi Bay), Corpus Christi Bay, and Aransas Bay."

EPA's Comments

This information should be excluded from the Amended Draft WP since it is relevant to the HRS Documentation Record. General Comments C (Hazard Record System Documentation Record) and J (Preparation of the Proposed Plan and Record of Decision) provide the EPA's discussions concerning these comments.

12. Section 2.2.3 - Nature and Extent of Contamination (Pages 9-20)

Draft Work Plan

This section of the Draft WP includes a discussion of the documentation taken directly from the HRS Documentation Record and the known extent of contamination at the facility for the ground water, soil, surface water, sediments, and air media.

EPA's Comments

Discussions concerning the known sources of contamination are appropriate for this section of the Amended Draft WP; however, references to the HRS Documentation Record should be clearly identified and the text formatted in a manner that can distinguish it from recent information and proposed RI/FS actions. Additionally, the Amended Draft WP should include a discussion of the potential and relatively recent releases, to the ground water and the on- and off-site soils and wetland areas, that may be attributed to the facility. These discussions should include information concerning the relatively recent documented releases that have occurred, since the completion of the HRS, from the North Site and the piping leading from the South Site to the docking areas. General Comments A (Key Definitions), B (Facility [Site] Boundaries), C (Hazard Ranking System Documentation Record), G (Potentially Responsible Party), H (Superfund Alternative Sites), I (Documentation of Hazardous Substances and Contaminant Releases to the Environment), J (Preparation of the Proposed Plan and Record of Decision), and K (References to the Many Diversified Interests, Inc., Superfund Site) provide the EPA's discussions concerning these comments.

13. Section 2.2.3 - Nature and Extent of Contamination (Page 10, 3rd Paragraph)

Draft Work Plan

The Draft WP states that:

> "Note; the HRS Record is incorrect with respect to the date that the sample was obtained, the actual date was January 13, 1986, based on the TACB report that is labeled Reference 11 in the HRS."

EPA's Comments

The statement in the Draft WP, concerning the date of the sample, is correct; however, it should be excluded from the Amended Draft WP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. General Comments C (Hazard Ranking System Documentation Record) and G (Potentially Responsible Party) provide the EPA's discussions concerning these comments.

14. Section 2.2.3.1 - Ground Water (Page 12, 2nd, 3rd, and 4th Paragraphs; and Page 13, 5th Paragraph)

Draft Work Plan

The Draft WP states that:

> "The lone sample was obtained from a temporary monitor well and there are no boring logs or completion logs available. Several compounds were detected in the sample, however, the use of a temporary monitor well and the completion technique of the temporary monitor well does not meet the acceptance criteria for quality control.
>
> In summary despite the assertion in the HRS 'that groundwater has been contaminated' the data indicate that no valid groundwater samples have been obtained at the site."

EPA's Comments

These statements concerning the data from the HRS should be excluded from the Amended Draft WP. Any impacts to the ground water will be determined during the RI/FS for the Site. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

Draft Work Plan

The Draft WP states that:

> "Adjacent to the northern property boundary of the storage and truck loading property, the Plains Marketing site is in the TCEQ Voluntary Cleanup Program

> (VCP). Previous investigations have revealed that soil and ground water are impacted at the site."

EPA's Comments

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall compile existing data which resulted from any previous sampling events that may have been conducted on and near the Site. The Respondent shall gather existing data which describes previous responses that have been conducted on and near the Site by local, state, federal, or private parties."

The Amended Draft WP should include a detailed discussion of the historical and current status of Plains Marketing's (PM) Voluntary Cleanup Program (VCP), including the associated documentation and monitoring well completion information. This discussion should also include the activities conducted by entities prior to PM. The purpose of this detailed discussion is to determine the possible impact the ground water contamination at PM may have on this RI/FS. The TCEQ's contact person for PM's VCP is Mr. Stu Goldsmith. He can be reached at 512-239-2960.

Draft Work Plan

The Draft WP states that:

> "A one-mile radius water well search was performed and the report is provided in Appendix A. Information in the water well search indicates that there are two registered water wells on Thayer Road (Figure 7). State of Texas Water Well Reports indicate that the wells are screened in a sand at a depth of 40 to 45 feet below land surface. No other water wells are located within 0.25 miles of the Site."

EPA's Comments

Deliverable-Specific Comment 10 (Section 2.2.1.6 - Human Population and Land Use) provides the EPA's discussions concerning these statements.

15. Section 2.2.3.2 - Soil (Page 13, 2nd, 5th and 6th Paragraphs)

Draft Work Plan

The Draft WP identifies Figures 8 (1979 Spill Locations), 9 (1982 Waste Pile), and 10 (1986 Spill).

EPA's Comments

Figures 8, 9, and 10 of the Amended Draft WP should be revised to depict "FM 2725," "Bishop Road," "North Site," and "South Site." General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

16. Section 2.2.3.2 - Soil (Pages 14 and 15, 13th Paragraph)

Draft Work Plan

The Draft WP states that:

> "Note; the previous paragraph is from the HRS Documentation Record and contains a serious error. The sampling that revealed the constituents 'not naturally occurring in crude oil' was the sampling of the contents of the above-ground storage tanks at the refinery and not sampling associated with the spill. During the listed dates (February 1996) the TNRCC did an inventory of the volume of the contents of the tanks at several facilities in the area and performed sampling of the material in the tanks. The sampling included the tanks at Gulf Coast conservation, Southwest Oil Recyclers, ARI, TRS, RBT, MJP Resources as well as NORCO. All the accessible tanks were sampled and the constituents listed as having been detected at the crude oil spill site are actually the analyses of the contents of the tanks. The compounds should have been expected since the TNRCC knew of the improper shipment of 'solvent like' materials from Tenneco during January 1986."

EPA's Comments

This paragraph should be excluded from the Amended Draft WP. The spilled residuals referenced in References 25 and 35 of the HRS Documentation Record refer to the analytical data provided in Reference 35. The TNRCC did perform an inventory of the tank contents on February 16 and 19, 1996. These data are provided in Reference 31 of the HRS Documentation Record. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

17. Section 2.2.3.2 - Soil (Page 15, 14th Paragraph)

Draft Work Plan

The Draft WP states that:

> "On April 4, 1996, Jones and Neuse conducted grid sampling at the spill site (Figure 11)."

EPA's Comments

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall compile existing data which resulted from any previous sampling events that may have been conducted on and near the Site. The Respondent shall gather existing data which describes previous responses that have been conducted on and near the Site by local, state, federal, or private parties."

The Amended Draft WP should include a detailed discussion, including the available documentation, of the historical sampling event conducted in April 1996.

18. Section 2.2.3.2 - Soil (Page 15, 16th Paragraph)

Draft Work Plan

The Draft WP states that:

> "It should be noted that the Inspection Workplan was signed on June 5, 2000 by the project personnel and at the end of the month by supervisory personnel, which was one month and longer after the sampling was already performed. . . . The results of the sampling had already been received when the Inspection Workplan, which is required to begin the sampling, was approved."

EPA's Comments

These sentences of the Draft WP should be excluded from the Amended Draft WP since they have no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. The EPA may, when appropriate, provide verbal or partial approval for field work to begin without a "final field sampling plan." General Comments C (Hazard Ranking System Documentation Record) and G (Potentially Responsible Party) provide the EPA's discussions concerning these comments.

19. Section 2.2.3.2 - Soil (Page 16, 21st - 26th Paragraphs)

Draft Work Plan

The Draft WP states that:

> "Source Area 1 was sampled to evaluate the discharge of refinery process wastewater plus other refinery effluent streams and runoff to an outlet located in Corpus Christi Bay. Samples SO-18, SO-22 and SO-23, collected from Source Area 1, were analyzed for Volatile Organics, Semi-Volatile Organics, Metals/Cyanide and Pesticides/PCB.
>
> Results of the Source Area 1 sampling, indicated that six constituents were detected in at least one of the three samples for the source area. The two background samples for the source area had five of the six constituents. The results of the analyses are compared to the Total Soil Combined Residential, Protective Concentration Limit (PCL) as established by the TCEQ for comparison. The results at the refinery are significantly below the values that would be acceptable for residential soil.
>
> Source Area 2 was sampled based on a note from the 1996 inspection that noted that there was an area designated in 1981 as 'dumped benzene.' No evidence of such an activity exists. Results of the sampling indicated that nine constituents were detected above the laboratory detection limit. However, compared to the TCEQ residential PCL only benzo(a)pyrene with of value of 0.740 mg/kg as compared to 0.56 mg/kg, exceeded the PCL.
>
> Source Area 3 was sampled to evaluate the main process area of the refinery and several known releases. A total of 12 samples, including one duplicate sample, were obtained from the source area. Of the 12 samples, only Thallium, a naturally occurring mineral, was detected above the TCEQ residential PCL.
>
> Source Area 4 was sampled to evaluate API separator sludge that was deposited inside the walls of a tank berm. Two samples SO-31 and SO-34 were analyzed and only lead and zinc were detected above the laboratory detection limit and the concentrations were significantly less than the TCEQ residential PCL.
>
> Source Area 5 was sampled to evaluate the dumping of cooling tower sludge on the ground. Analysis of sample SO-28 revealed that only Thallium was detected above the TCEQ residential PCL."

EPA's Comments

The Amended Draft WP should be revised to exclude comparisons of the HRS analytical data to State Protective Concentration Levels (PCLs) in the discussion of the five source areas identified in the HRS Documentation Record. Any impacts to the soil, sediment, ground water, and surface water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. Preliminary Remediation Goals (PRGs; i.e., Region 6 Medium-Specific Screening Levels [MSSLs], Ecological Screening Levels, and Applicable or Relevant and Appropriate Requirements [ARARs]) should be established early in the RI/FS; specifically, during the "scoping" phase of the RI/FS. These risk-based screening levels, which will be used to develop a FSP and QAPP for this Site, may or may not be more stringent than the State's PCLs. Additionally, the analytical detection limits utilized in the HRS may have exceeded human health or ecological screening levels and would not be suitable for this RI/FS. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

20. Section 2.2.3.3 - Surface Water (Page 17, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> "Despite the repeated concern for the wetlands adjacent to the refinery no surface water samples were taken during the HRS."

EPA's Comments

Any impacts to the surface water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. The statement in the Draft WP concerning the lack of surface water samples in the HRS Documentation Record should be excluded from the Amended Draft WP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

21. Section 2.2.3.4 - Sediments (Page 17, 1st Paragraph)

Draft Work Plan

The Draft WP identifies Figure 12 (TNRCC Sediment Sampling Location Map).

EPA's Comments

Figure 12 should be revised in the Amended Draft WP to delete the text "Figure 6 - Surface Water Pathway Overland Flow: Sediment Samples." Additionally, the text referencing the "source" in Figure 12 is not legible, even in electronic format. General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

22. Section 2.2.3.4 - Sediments (Page 17, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> "It should be noted that the Inspection Workplan was signed on June 5, 2000 by the project personnel and at the end of the month by supervisory personnel, which was one month and longer after the sampling was already performed. . . . The results of the sampling had already been received when the Inspection Workplan was approved."

EPA's Comments

These statements should be excluded from the Amended Draft WP since they have no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. The EPA may, when appropriate, provide verbal or partial approvals for field work to begin prior to final approvals of work plans and/or FSPs. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

23. Section 2.2.3.4 - Sediments (Pages 17 and 18, 3rd, 4th and 5th Paragraphs)

Draft Work Plan

The Draft WP states that:

> "Sediment samples will be collected from the surface water pathway and sampled for organics and inorganics to document and further investigate the potential for releases of contaminants to wetlands, Redfish Bay, and the Intracoastal Waterway. Ten sediment samples, SE-01 through SE-06, SE-09, SE-10, SE-30, and SE-31, will be collected from the Redfish Bay along the Intracoastal Waterway. Two of these samples, SE-04 and SE-10, are designated as a duplicate sample.

Six sediment samples SE-20 through SE-25 will be collected from the PPE located at the southeast edge of the Falcon Refinery. One sample, SE-26, will be taken from onsite wetlands. Thirteen sediment samples, SE-11 through SE-19, SE-25, SE-26, and SE-29, will be collected from wetland areas adjacent to the on-site wetlands or along the surface water migration pathway. Three sediment background samples, SE-07, SE-08, and SE- 28 will be collected from areas from northeast and southwest of the site. Two samples are designated as duplicate samples, SE-12, and SE-23.

Sediment samples will be collected from areas of quiescent settling with low hydrologic activity or energy to collect a representative fraction of the sediments. Sampling will be performed with sediment core samplers into which a 2 foot dedicated polyethylene zero-contamination tubes will be inserted. Dedicated stainless steel spoons and bowls will be used to collect the samples. Samples will be placed in glass jars and sealed with Teflon-lined lids."

EPA's Comments

The information presented in these three paragraphs of the Draft WP is relevant to the HRS Documentation Record and appears to indicate proposed actions for this RI/FS. These paragraphs should be excluded from the Amended Draft WP. Any impacts to the sediments from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. General Comments C (Hazard Ranking System Documentation Record) and J (Preparation of the Proposed Plan and Record of Decision) provide the EPA's discussions concerning these comments.

24. Section 2.2.3.4 - Sediments (Page 18, 6th, 7th, and 8th Paragraphs)

Draft Work Plan

The Draft WP states that:

"Results of the sediment sampling, which were documented in the HRS, are compared to the direct human contact sediment PCLs that were developed by the TCEQ on Table 1. The comparison indicates that only one compound of all the sediment analyses exceeded a PCL. The lone constituent was benzo(a)pyrene in sample SE-30 which had a concentration of 3.7 mg/kg as compared to the PCL which is 1.6 mg/kg. Sediment sample SE-30 is over a mile away from the refinery and 15 samples between the refinery and SE-30 did not have excessive benzo(a)pyrene. This clearly demonstrates that the refinery was not the source. Additionally, sediment sample SE-02 which was obtained adjacent to SE-30 and up current had no constituents above laboratory detection limits. As a result the constituents detected in SE-30 are likely localized and of minimal concern.

> Of the 33 sediment samples that were taken during the HRS only five had any constituents above either laboratory detection limits or background. Sediment sample SE-27 had two constituents of concern barium and manganese, however, this location is up gradient from the wetlands that are adjacent to the refinery and the detected compound could not have come from the refinery. In fact, background samples SE-07 and SE-08 also had these constituents.
>
> Seven sediment samples (SE-18, 19, 20, 21, 22, 23 and 24) were taken immediately adjacent to the refinery property at locations selected to document the effect of runoff and spills from the refinery into the wetlands. Five of the sediment samples (SE-18, 19, 22, 23 and 24) had no constituents above laboratory detection. Sediment sample SE-20 had indications of barium and manganese (0.138 mg/kg and 0.352 mg/kg), however at a fraction of the concentration that was detected in the background samples (104.0 mg/kg and 250 mg/kg). Since the concentrations are significantly below background, the assertion that a release has occurred based on the detection of the compounds is incorrect."

EPA's Comments

The Amended Draft WP should be revised to exclude comparisons of the HRS Documentation Record sediment analytical data to State PCLs. Any impacts to the sediments from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. PRGs (i.e., Region 6 MSSLs, Ecological Screening Levels, and ARARs) should be established early in the RI/FS; specifically, during the "scoping" phase of the RI/FS. These risk-based screening levels, which will be used to develop a FSP and QAPP for this Site, may or may not be more stringent than the State's PCLs. Additionally, the analytical detection limits utilized in the HRS may have exceeded human health or ecological screening levels and would not be suitable for this RI/FS. Also, the PCLs listed in Table 1 of the Draft WP are direct human contact sediment PCLs that would not be relevant or applicable to ecological receptors. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

25. Section 2.2.4 - Additional Site Characterization (Page 20, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "The most significant threat to the environment from the Falcon Refinery site is the waste that is stored in the above ground storage tanks, which will be a central focus of the Removal Action."

EPA's Comments

A determination of the most significant threat associated with the Site will be made during the RI/FS, and the human health and ecological risk assessments, for the Site. The Amended Draft WP should be revised to state that:

> "The most immediate threat to human health and the environment is from the wastes that are stored in the above ground storage tanks at the facility. These wastes are a central focus of the ongoing Removal Action."

26. Section 2.2.4.1 - Other Sources (Page 20, 1st and 2nd Paragraphs)

Draft Work Plan

The Draft WP states that:

> "During the inspection at the Plains Marketing (formerly ARM Refining) facility in December 1985, the TWC documented an oil spill from an ARM pipeline which caused pollution to the surface waters of the State (Ref. 58, pp.2-3)."

EPA's Comments

The Amended Draft WP should be amended to state that:

> "During the inspection at the Plains Marketing (formerly ARM Refining) facility in December 1985, the TWC documented an oil spill from an ARM pipeline which caused pollution to the surface waters of the State (Ref. 58, pp.2-3). During this time, ARM's operations consisted of reclaiming waste oil from drilling site pond skim and used lubrication oil from various sources."

Draft Work Plan

The Draft WP states that:

> "Much of the facility has been assessed and evaluated through the Voluntary Cleanup Program under the TCEQ. The Plains site has 19 monitor wells, which have quarterly gauging and sampling data dating back to 1996 (Figure 13). May 29, 2004 analytical data (Table 2) indicate that four monitor wells have benzene concentrations that exceed the drinking water standard, which is 5.0 ug/l. One of the monitor wells (MW-17) that exceeded the drinking water standard is located across FM 2725 from the site where the release occurred."

EPA's Comments

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall compile existing data which resulted from any previous sampling events that may have been conducted on and near the Site. The Respondent shall gather existing data which describes previous responses that have been conducted on and near the Site by local, state, federal, or private parties."

The Amended Draft WP should include a detailed discussion of the historical and current status of PMs VCP, including the associated documentation and monitoring well completion information. This discussion should also include the activities conducted by entities prior to PM. The purpose of this detailed discussion is to determine the possible impact the ground water contamination at PM may have on this RI/FS. The TCEQ's contact person for PM's VCP is Mr. Stu Goldsmith. He can be reached at 512-239-2960. Additionally, the Amended Draft WP should be revised to include a legible Figure 13, and Table 2 should identify the meaning of "TPH TX 1005." General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

27. Section 2.2.4.1 - Other Sources (Page 21; 3rd Paragraph)

Draft Work Plan

The Draft WP identifies monitor wells MW-1, MW-2, MW-3, MW-4 (Figure 14 - Plains Monitor Wells Not In Voluntary Cleanup) and Table 3. The Draft WP states that:

> "These monitor wells are immediately upgradient of the North Site and have likely impacted the NORCO facility. The TCEQ has not required any delineation, additional sampling or remediation."

EPA's Comments

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall compile existing data which resulted from any previous sampling events that may have been conducted on and near the Site. The Respondent shall gather existing data which describes previous responses that have been conducted on and near the Site by local, state, federal, or private parties."

The Amended Draft WP should include a detailed discussion of the historical and current status of PM VCP, including the associated documentation and monitoring well completion information. This discussion should also include the activities conducted by entities prior to PM. The purpose of this detailed discussion is to determine the possible impact the ground water contamination at PM may have on this RI/FS. The TCEQ's contact person for PM's VCP is Mr. Stu Goldsmith. He can be reached at 512-239-2960. Additionally, the Amended Draft WP should be revised to include a legible Figure 14 and to reflect the monitoring well numbers depicted in Figure 14, "W-1, W-2, W-3, and W-4." Table 3 should be revised to identify "TPH-D."

Any impacts to the ground water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. The Amended Draft WP should be revised to state that:

> "These monitor wells are immediately upgradient of the North Site and the possibility exists that the ground water underlying the NORCO facility may have been impacted. This possibility will be investigated during the RI/FS planned for the Site."

General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

28. Section 2.2.4.1 - Other Sources (Page 22, 4th - 10th Paragraphs)

Draft Work Plan

The Draft WP briefly discusses the industries or commercial entities located in the general vicinity of the facility.

EPA's Comments

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall compile and review all available data relating to past disposal practices of any kind on and near the Site. The Respondent shall compile existing data concerning the physical and chemical characteristics of the hazardous substances, and their distribution among the environmental media (ground water, soil, surface water, sediments, and air) on and near the Site."

The Amended Draft WP should include a detailed discussion of the chemicals or organic and inorganic substances that are or were present or produced at each commercial site. The purpose of this information is to identify other possible sources of hazardous substances, pollutants, or contaminants that may be found at the Site. Additionally, the Amended Draft WP should reference Figure 6 (Adjacent Properties Map) in this discussion. General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

29. Section 3.0 - Initial Evaluation (Page 22, 1st and 2nd Paragraphs)

Draft Work Plan

The Draft WP identifies the human health conceptual site model (Figure 15 - Human Health Risk Assessment Conceptual Site Model) which consists of a flow diagram and states that:

> "The conceptual site model, which is depicted on Figure 15 describes the current and future exposure scenarios related to the site, which has been divided into the North and South Sites. Separate RI/FS goals will be established for each of the properties due to the wetlands that are adjacent to the South Site."

EPA's Comments

The Amended Draft WP should be revised to include a legible Figure 15. This figure is difficult to read, even in electronic format. Figure 15 should consistently be entitled, "Human Health Conceptual Site Model." In addition to a flow diagram, the Human Health Conceptual Site Model (HH CSM) should also be depicted in a schematic format which is more easily understood by the public. Attachment C (Example Conceptual Site Models [Flow Diagram and Schematic Formats] [on compact disk]) provides examples of CSMs that have been approved by the EPA. The Amended Draft WP should include a HH CSM (including an Ecological CSM) that contains similar format and content.

The entire refinery should not be included as a single source in the HH CSM (including the Ecological CSM). The primary sources should be identified separately as releases from tanks, pipelines, impoundments, and discharges (etc.). The HH CSM (including the Ecological CSM) should also consider the releases or possible releases of hazardous substances, pollutants, or contaminants to the refuse area located southwest of the facility; the vacant areas of the facility; the residential areas located immediately adjacent to the facility; the wetland areas located south, southeast, and east of the facility (including the wetland areas located north of Sunray Road); the historical and current docking facilities on Redfish Bay; the entire length of the pipelines leading from the North Site to the historical and current docking facilities; and the historical wastewater discharge outfall point into Corpus Christi Bay. NORCO should continue discussions with the EPA concerning the HH CSM.

The Amended Draft WP should be revised to state that:

> "The Human Health Conceptual Site Model, which is depicted on Figure 15, describes the current and future exposure scenarios related to the Site, which has been divided into the North and South Sites, including off-site areas. RI/FS goals for each of these areas will be determined during the implementation of the Data Quality Objectives Process."

Each of the General Comments provide the EPA's discussions concerning these comments.

Draft Work Plan

The Draft WP states that:

> "The South Site RI is described in detain in the Field Sampling Plan (FSP), which provides proposed locations for borings and monitor wells based on the five source areas that were identified in the HRS. However, based on the results of the RI the South Site will likely be addressed in the future as one unit rather than the five that were identified in the HRS."

EPA's Comments

The Amended Draft WP should be revised to state that:

> "The South Site is described in detail in the Field Sampling Plan (FSP), which provides proposed locations for borings and monitor wells based on the five sources areas (judgmental sample locations) that were identified in the HRS and a random sampling scheme. For purposes of the planned risk assessments, the RI/FS goals for the North and South Sites will be determined during the implementation of the Data Quality Objectives Process."

Each of the General Comments provide the EPA's discussions concerning these comments.

30. Section 5.4 - Community Relations (Pages 23 and 24, 1st, 2nd, and 4th Paragraphs)

Draft Work Plan

The Draft WP states that:

"To date the EPA has performed door-to-door interviews and met with the City Managers for Corpus Christi and Ingleside. Community involvement activities are described in the COMMUNITY INVOLVEMENT PLAN Falcon Refinery Superfund Site Ingleside, San Patricio County, Texas, August 2004.

To keep the public informed NORCO and the EPA will be holding a community meeting on September 16, 2004 to discuss the signed Agreed Orders, the approved Removal Action Plan and the status of the RI/FS Work Plan. A flyer announcing the meeting was mailed to over 250 addresses and a newspaper announcement for the meeting will be placed in the Corpus Christi Caller Times.

. . . . . .

A project website is being developed and the address will be provided at the community meeting on September 16th."

EPA's Comments

The Amended Draft WP should be revised to state that:

"The EPA performed door-to-door interviews with local residents, living within one mile of the Site, in October 2002 to gather information about the Site. The EPA also met with the City Manager of Ingleside to discuss the status of the Site. On October 12, 2004, the EPA met with the City Manager of Ingleside, San Patricio County Commissioner, and local residents living immediately adjacent to the Site to provide an update on Site activities and to discuss concerns that were voiced during the community meeting held on September 16, 2004, at the Ingleside City Hall. Community involvement activities are described in the Community Involvement Plan (CIP), prepared by the EPA for the Site, which is updated on a regular basis. The CIP is located at the Ingleside Public Library.

To keep the public informed, the EPA and NORCO hosted a community meeting on September 16, 2004, to discuss the current and planned activities for the Site. A fact sheet announcing the meeting was mailed to over 250 individuals and entities included in the mailing list for the Site. Newspaper announcements were 'public noticed' in the Corpus Christi, Ingleside, and Port Aransas newspapers, prior to the community meeting, which encouraged the public's participation at the meeting.

. . . . . .

A project internet site has been developed by NORCO that provides information about the Site. The internet address for the site is "www.falcon-refinery.com."

General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

31. Section 5.5.2 - BHHRA Objectives (Page 24, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "The primary objective of a BHHRA is to evaluate and assess potential risks to human health posed by the chemicals present at a site in the absence of any remedial action."

The Draft WP also states that one of the principal guidance documents that have been used to prepare this plan to conduct the BHHRA at the Site includes the guidance document entitled, "Dermal Exposure Assessment: Principles and Applications" (EPA, 1992a).

EPA's Comments

The Amended Draft WP should be revised to state that:

> "The primary objective of the BHHRA is to evaluate and assess potential risks to human health posed by the chemicals present at or from the Site in the absence of any remedial action."

Additionally, the "Dermal Exposure Assessment" guidance document cited in the Draft WP has been superseded. The Amended Draft WP should cite the current guidance document entitled, "Risk Assessment Guidance for Superfund; Volume I: Human Health Evaluation Manual; Part E, Supplemental Guidance for Dermal Risk Assessment" (EPA/540/R/99/005, July 2004).

General Comments A (Key Terms), B (Facility [Site] Boundaries), C (Hazard Ranking System Documentation Record), G (Potentially Responsible Party), H (Superfund Alternative Sites), I (Documentation of Hazardous Substances and Contaminant Releases to the Environment), and J (Preparation of the Proposed Plan and Record of Decision) provide the EPA's discussions concerning these comments.

32. Section 5.5.2 - BHHRA Objectives (Page 25, 4th Paragraph)

Draft Work Plan

The Draft WP states that:

> "In accordance with the Administrative Order on Consent for the Site, a Draft BHHRA will be prepared and submitted to EPA for review and approval, according to the schedule specified in the Final FE/FS Work Plan. A final BHHRA will be submitted within 14 calendar days after the receipt of EPA's approval of the Amended Draft BHHRA."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "In accordance with the Administrative Order on Consent for the Site, a Draft BHHRA Report will be prepared and submitted to EPA for review and approval, according to the schedule specified in the Final RI/FS Work Plan. An Amended Draft BHHRA Report will be submitted 45 calendar days of the receipt of the EPA's comments on the Draft BHHRA Report. A final BHHRA Report will be submitted within 30 calendar days after the receipt of EPA's approval of the Amended Draft BHHRA Report."

33. Section 5.5.4 - Guidelines for Data Reduction (Pages 26 and 27, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "• In general for risk assessment purposes, the available groundwater data will be reviewed with consideration of sampling methodologies that do not meet the following guidelines:
>
> • Sampling methodologies do not artificially increase or decrease naturally suspended particle concentrations.
>
> • Groundwater samples should be collected using a low flow rate.
>
> • Groundwater samples should generally not be filtered."

EPA's Comments

The Amended Draft WP should be revised into a format that sets the last three "bullets" apart from the rest of the bullets in this section. General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

34. Section 5.5.8 - Land Use (Pages 28 and 29)

Draft Work Plan

The Draft WP describes the current land use of the Site.

EPA's Comments

This section of the Amended Draft WP should be entitled, "Current and Future Land Uses." This section, or another section, of the Amended Draft WP should include a detailed discussion on the current and reasonably anticipated future land use(s) for the Site. The EPA's land use directive entitled "Land Use in the CERCLA Remedy Selection Process" (OSWER Directive No. 9355.7-04, May 25, 1995) states that:

> "Discussions with local land use planning authorities, appropriate officials, and the public, as appropriate, should be conducted as early as possible in the scoping phase of the Remedial Investigation/Feasibility Study (RI/FS). This will assist EPA in understanding the reasonably anticipated future uses of the land on which the Superfund site is located.
>
> . . . . . .
>
> Land use assumptions affect the exposure pathways that are evaluated in the baseline risk assessment. Current land use is critical in determining whether there is a current risk associated with a Superfund site, and future land use is important in estimating potential future threats. The results of the risk assessment aid in determining the degree of remediation necessary to ensure long-term protection at NPL sites.
>
> . . . . . .
>
> This directive expands on discussions provided in the preamble to the National Oil and Hazardous Substance Contingency Plan (NCP); 'Risk Assessment Guidance for superfund Vol. I, Human Health Evaluation Manual' (Part A) (EPA/540/1-89/002, Dec. 1989); 'Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA' (OSWER Directive 9355.3-01, Oct. 1988); and . . . .
>
> This land use directive may have the most relevance in situations where surface soil is the primary exposure pathway. Generally, where soil contamination is impacting ground water, protection of the ground water may drive soil cleanup

levels. Consideration of future ground water use for CERCLA sites is not addressed in this document. There are separate expectations established for ground water in the NCP rule section 300.430 (a) (1) (iii) (F) that EPA expects to return usable ground waters to their beneficial uses wherever practicable, within a timeframe that is reasonable given the particular circumstances of the site.

This directive has two primary objectives. First, this directive promotes early discussions with local land use planning authorities, local officials, and the public regarding reasonably anticipated future uses of the property on which an NPL site is located. Second, this directive promotes the use of that information to formulate realistic assumptions regarding future land use and clarifies how these assumptions fit in and influence the baseline risk assessment, the development of alternatives, and the CERCLA remedy selection process.

. . . . . .

The baseline risk assessment generally needs only to consider the reasonably anticipated future land use; however, it may be valuable to evaluate risks associated with other land uses. The NCP preamble (55 Fed. Reg. 8710) states that, in the baseline risk assessment, more than one future land use assumption may be considered when decision makers wish to understand the implications of unexpected exposures. Especially where there is some uncertainty regarding the anticipated future land use it may be useful to compare the potential risks associated with several land use scenarios to estimate the impact on human health and the environment should the land use unexpectedly change. The magnitude of such potential impacts may be an important consideration in determining whether and how institutional controls should be used to restrict future uses. If the baseline risk assessment evaluates a future use under which exposure is limited, it will not serve the traditional role, evaluating a 'no action' scenario. A remedy, i.e. institutional controls to limit future exposure, will be required to protect human health and the environment. In addition to analyzing human health exposure scenarios associated with certain land uses, ecological exposures may also need to be considered."

The EPA recommends that residential, commercial/industrial, and recreational scenarios be considered during the implementation of this RI/FS and in the calculation of risk at the Site. Screening levels should be based on each of these scenarios and each respective exposure pathway. Of course, this does not mean that the Site would be cleaned up, if necessary, to residential standards. Cleanup to a residential standard would allow unrestricted use of the Site. Cleanup to an industrial standard would require the necessary institutional controls (i.e., deed restrictions) in the Record of Decision for the Site. However, the baseline risk assessment may determine that an industrial standard may also be protective under a residential scenario, and the final remedy selected for the Site would not require institutional controls. NORCO should

continue discussions with the EPA concerning the reasonably anticipated future land use(s) for the Site. General Comments J (Preparation of the Proposed Plan and Record of Decision) and K (References to the Many Diversified Interests, Inc., Superfund Site) provide the EPA's discussions concerning these comments.

35. Section 5.5.9 - Water Use (Page 29)

Draft Work Plan

The Draft WP describes the current water use at the Site.

EPA's Comments

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall gather existing data which identifies and locates residential, municipal, or industrial wells on and near the Site. The Respondent shall gather existing data which identifies surface water uses for areas surrounding the Site including, but not limited to, downstream of the Site."

The Amended Draft WP should be revised to state that:

> "According to the EPA, at least one resident living on Thayer Road uses the ground water for potable purposes. The resident does not have any information concerning the completion depth of the well or the depth to usable quality water."

This section of the Amended Draft WP should include a detailed discussion on water wells and water resource uses. This section should be entitled, "Ground Water and Surface Water Resources and Uses." General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

36. Section 5.5.15 - Toxicity Assessment and Documentation (Page 32, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "IRIS, an EPA-maintained computerized database (IRIS, 2001) will be the preferred source of toxicity values. If a toxicity value is not available through IRIS, EPA's Health Effects Assessment Summary Tables (HEAST; EPA, 1997b) will be consulted. A list of the toxicity values that are not available either on IRIS or in HEAST will be submitted to EPA for further assistance. In cases where there are no values available from IRIS or HEAST, the National Center for

Environmental Assessment (NCEA) toxicity values found in the most recent EPA Region 6 Human Health Medium-Specific Screen Levels table will be used."

EPA's Comments

The EPA has revised the recommended hierarchy of human health toxicological values. The EPA's Region 6 MSSLs reflect the hierarchy of toxicological values identified in the EPA's recent directive entitled, "Human Health Toxicity Values in Superfund Risk Assessments" (OSWER Directive 9285.7-53; December 5, 2003). The Amended Draft WP should be revised to state that:

> "A recent EPA directive entitled, 'Human Health Toxicity Values in Superfund Risk Assessments' (OSWER Directive 9285.7-53; December 5, 2003) revises the recommended hierarchy of human health toxicity values originally presented in the EPA's guidance document entitled, 'Risk Assessment Guidance for Superfund Volume I, Part A, Human Health Evaluation Manual' (OSWER 9285.7-02B, EPA/540/1-89/002, December 1989).
>
> The Integrated Risk Information System (IRIS) remains in the first tier (Tier I) of the recommended hierarchy as the generally preferred source of human health toxicity values. IRIS generally contains reference doses (RfDs), reference concentrations (RfCs), cancer slope factors, drinking water unit risk values, and inhalation unit risk values that have gone through a peer review and the EPA's consensus review process. IRIS normally represents the official Agency scientific position regarding the toxicity of the chemicals based on the data available at the time of the review.
>
> The second tier (Tier II) is the EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs), which are available at EPA Region 6. Generally, PPRTVs are derived for one of two reasons. First, the Superfund Health Risk Technical Support Center (STSC) is conducting a batch-wise review of the toxicity values in the Health and Environmental Affects Summary Tables (HEAST), now a Tier 3 source. As such reviews are completed, those toxicity values will be removed from HEAST, and any new toxicity value developed in such a review will be a PPRTV and placed in the PPRTV database. Second, Regional Superfund offices may request a PPRTV for contaminants lacking a relevant IRIS value. The STSC uses the same methodologies to derive PPRTVs for both.
>
> The third tier (Tier III) includes other sources of information. Priority should be given to sources that provide toxicity information based on similar methods and procedures as those used for Tier I and Tier II, contain values which are peer reviewed, are available to the public, and are transparent about the methods and processes used to develop the values. Consultation with the STSC or

headquarter's program office is recommended regarding the use of the Tier 3 values for Superfund response decisions when the contaminant appears to be a risk driver for the site. In general, draft toxicity assessments are not appropriate for use until they have been through peer review, the peer review comments have been addressed in a revised draft, and the revised draft is publicly available.

Additional sources may be identified for Tier III. Toxicity values that fall within the third tier in the hierarchy include, but need not be limited to, the following sources:

- The California Environmental Protection Agency toxicity values are peer reviewed and address both cancer and non-cancer effects.
- The Agency for Toxic Substances and Disease Registry (ATSDR) Minimal Risk Levels (MRLs) are estimates of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse non-cancer health effects over a specified duration of exposure. The ATSDR MRLs are peer reviewed.
- HEAST toxicity values are Tier 3 values. As noted above, the STSC is conducting a batch-wise review of HEAST toxicity values. The toxicity values remaining in HEAST are considered Tier 3 values."

37. Section 5.5.17 - Carcinogenic Risk (Page 33, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

"Potential carcinogenic risk will be calculated by multiplying the estimated lifetime-averaged daily intake that is calculated for a chemical through an exposure route by the exposure route-specific (oral, inhalation, or dermal) cancer slope factor (CSF), as follows:

Risk = EDI * CSF

Where:

EDI = Estimated daily intake (intake averaged over a 70-year lifetime) (mg/kg-day)
CSF = Chemical- and route-specific cancer slope factor (mg/kg-day)$^{-1}$ "

EPA's Comments

The Amended Draft WP should be revised to state that:

> "For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the carcinogen. Excess lifetime cancer risk (ELCR) is calculated from the following equation:
>
> ELCR = CDI x SF
>
> where:
>
> ELCR = a unitless probability (e.g., 2×10^{-5}) of an individual developing cancer
> CDI = chronic daily intake averaged over 70 years, expressed as mg/kg-day
> SF = slope factor, expressed as $(mg/kg\text{-}day)^{-1}$
>
> These risks are probabilities that are expressed in scientific notation (e.g., 1.0×10^{-6}). An ELCR of 1.0×10^{-6} indicates that an individual experiencing the RME estimate has a 1 in 1,000,000 chance of developing cancer as a result of Site-related exposure. This is referred to as an ELCR because it would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to too much sun. The chance of an individual developing cancer from all other causes has been estimated to be as high as one in three. The EPA's generally acceptable risk range for Site-related exposures to carcinogens is 1.0×10^{-4} to 1.0×10^{-6}, or a 1 in 10,000 to 1 in 1,000,000 chance, respectively, of an individual developing cancer."

General Comment J (Preparation of the Proposed Plan and Record Decision) provides the EPA's discussions concerning these comments.

38. Section 5.5.18 - Non-Carcinogenic Effects (Page 33, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "The potential for noncarcinogenic health effects will be evaluated by the calculation of hazard quotients (HQs) and hazard indices (HIs). An HQ is the ratio of the exposure duration-averaged estimated daily intake through a given exposure route to the chemical and route-specific (oral, inhalation, or dermal) RfD. The HQ-RfD relationship is illustrated by the following equation:

HQ = EDI / RfD

Where:

HQ = Hazard quotient
EDI = Estimated daily intake (averaged over the exposure period) (mg/kg-day)
RfD = Reference dose (mg/kg-day)"

EPA's Comments

The Amended Draft WP should be revised to state that:

"For noncarcinogens (systemic toxicants), potential effects are evaluated by comparing an exposure level over a specified time period (e.g., exposure duration) with a reference dose (RfD) or concentration (RfC) derived for a similar exposure period. An RfD represents a level that an individual may be exposed to that is not expected to cause any harmful effect. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ of less than 1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that toxic noncarcinogenic effects from that chemical are unlikely. The Hazard Index (HI) is generated by adding the HQs for all COCs that affect the same target organ (e.g., liver) or that act through the same mechanism of action within a medium or across all media to which a given individual may reasonably be exposed. An HI of less than 1 indicates that, based on the sum of all HQ's from different contaminants and exposure routes, toxic noncarcinogenic effects from all contaminants are unlikely. An HI greater than 1 indicates that Site-related exposures may present a risk to human health. The HQ is calculated as follows:

Non-cancer HQ = CDI/RfD

where:

HQ = Hazard quotient (unitless)
CDI = Chronic daily intake (mg/kg-day)
RfD = reference dose (mg/kg-day)"

General Comment J (Preparation of the Proposed Plan and Record Decision) provides the EPA's discussions concerning these comments.

39. Section 5.5.20 - Approach for Developing Preliminary Remediation Goals (Pages 34 and 35, 3rd and 4th Paragraphs)

Draft Work Plan

The Draft WP states that:

> "PRGs will be calculated for each chemical in a medium based on total cancer risks of 1E-06 (1-in 1-million), 1E-05 (1-in-100,000) , and 1E-04 (1-in-10,000) and on total hazard indices of 0.1, 1.0 and 3 (EPA, 1996c).
>
> Since the cancer risk or hazard index for a chemical is directly proportional to the exposure concentration, the following simplified equation will be used to calculate PRGs.
>
> $$PRG = \frac{TL \times EC}{CR \text{ (or HI)}}$$, which can be averaged over a 70-year lifetime,
>
> Where:
> TL = Target Level (HI = 0.1, 1.0 and 3 for noncarcinogenic effects and cancer
> Risk = 1E-06, 1E-05 or 1E-04 for carcinogenic effects).
> EC = Medium-Specific Exposure Concentration.
> CR (or HI) = Cancer Risk or Hazard Index calculated based on the EC."

EPA's Comments

The approach for calculating PRGs, discussed in the Draft WP, was derived from the EPA's Region 4 "Human Health Risk Assessment Bulletins, Supplemental Guidance." These bulletins also discuss the calculation of Remedial Goal Options.

The Amended Draft WP should be revised to reflect the approach for calculating PRGs discussed in the EPA's PRGs directive entitled, "Human Health Evaluation Manual, Part B: Development of Risk-Based Preliminary Remediation Goals" (OSWER Directive 9285.7-01B, December 13, 1991). This directive states that:

> "Part B provides guidance on using U.S. Environmental Protection Agency (EPA) toxicity values and exposure information to derive risk-based PRGs. Initially developed at the scoping phase using readily available information, risk-based PRGs generally are modified based on site-specific data gathered during the remedial investigation/feasibility study (RI/FS).

. . . . . .

> Chemical-specific PRGs are concentration goals for individual chemicals for specific medium and land use combinations at CERCLA sites. There are two general sources of chemical-specific PRGs: (1) concentrations based on ARARs and (2) concentrations based on risk assessment.
>
> . . . . . .
>
> The recommended approach for developing remediation goals is to identify PRGs at scoping, modify them as needed at the end of the RI or during the FS based on site-specific information from the baseline risk assessment, and ultimately select remediation levels in the Record of Decision (ROD).
>
> . . . . . .
>
> In general, the equations described in this chapter [3] are sufficient for calculating the risk-based PRGs at the scoping stage of the RI/FS. Note, however, that these equations are based on standard default assumptions that may or may not reflect site-specific conditions."

The EPA's Region 6 MSSLs have been developed according to the approach recommended in the EPA's 1991 PRGs directive. The establishment of PRGs (i.e., MSSLs, Ecological Screening Levels, and ARARs) early in the RI process, usually at scoping, serves as the basis for the RI/FS FSP and QAPP. Detection limits need to be reviewed before the FSP and QAPP are completed to ensure that the proposed analytical methods will have adequate quantitation limits and the Site can be adequately characterized. Quantitation limits should be less than human health and ecological screening levels. Attachment D (Example Tables of Sample Quantitation Limits and Screening Levels [on compact disk]) provides example tables that have been approved by the EPA. The tables in the Amended Draft WP should include the content and format depicted in these examples. These tables should also include PCLs. General Comment K (References to the Many Diversified Interests, Inc. Superfund Site; Houston Texas) provides the EPA's discussions concerning these comments.

40. Section 5.6. - Baseline Ecological Risk Assessment (Page 35, 4th Paragraph)

Draft Work Plan

The Draft WP states that:

> "The sequence of these steps is illustrated in Figure 16."

EPA's Comments

The Amended Draft WP should be revised to replace Figure 16 (8 Step Ecological Risk Process) with Figure 17 (Framework for Ecological Risk Assessment Process). Figure 17 should be entitled, "Eight-Step Ecological Risk Assessment Process for Superfund." Figure 17 depicts the eight-step ecological risk assessment process discussed in the EPA's guidance document entitled, "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final" (EPA 540-R-97-006, June 1997). General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

41. Section 5.6.2 - Screening Level Exposure Estimate and Risk Calculation, Step 2 (Page 36, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "At the conclusion of this step, ecological screening levels will be developed for the Site, it will be determined, with the EPA's approval, that either the screening-level ecological risk assessment is adequate to determine that the ecological threats are negligible, or the process should continue to a more detailed ecological risk assessment (Steps 3 through 7)."

EPA's Comments

The Amended Draft WP should be revised to include the selected ecological screening levels for the Site. The establishment of PRGs (i.e., MSSLs, Ecological Screening Levels, and ARARs) early in the RI process, usually at scoping, serves as the basis for the RI/FS FSP and QAPP. Detection limits need to be reviewed before the FSP and QAPP are completed to ensure that the proposed analytical methods will have adequate quantitation limits and the Site can be adequately characterized. Quantitation limits should be less than human health and ecological screening levels. Attachment D (Example Tables of Sample Quantitation Limits and Screening Levels [on compact disk]) provides example tables that have been approved by the EPA. The tables in the Amended Draft WP should include the content and format depicted in these examples. These tables should also include PCLs. General Comment K (References to the Many Diversified Interests, Inc. Superfund Site; Houston Texas) provides the EPA's discussions concerning these comments.

42. Section 5.6.2.1 - Approach for Developing Ecological Screening Levels (Page 36, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "Conservative screening levels will be determined for soil, surface water/groundwater, and sediments, and will be used in selecting COPECs.. Ecological screening levels will also be used in evaluating the acceptability of detection limits, and if necessary determining the appropriateness of preliminary remediation goals."

EPA's Comments

The Amended Draft WP should be revised to include the selected ecological screening levels for the Site. The establishment of PRGs (i.e., MSSLs, Ecological Screening Levels, and ARARs) early in the RI process, usually at scoping, serves as the basis for the RI/FS FSP and QAPP. Detection limits need to be reviewed before the FSP and QAPP are completed to ensure that the proposed analytical methods will have adequate quantitation limits and the Site can be adequately characterized. Quantitation limits should be less than human health and ecological screening levels. Attachment D (Example Tables of Sample Quantitation Limits and Screening Levels [on compact disk]) provides example tables that have been approved by the EPA. The tables in the Amended Draft WP should include the content and format depicted in these examples. These tables should also include PCLs. General Comment K (References to the Many Diversified Interests, Inc. Superfund Site; Houston, Texas) provides the EPA's discussions concerning these comments.

43. Section 5.6.2.1.3 - Sediments (Page 38, 1st and 2nd Paragraphs)

Draft Work Plan

The Draft WP states that:

"Most of the above referenced databases will be consulted for appropriate values.

Based on the results of the screening level exposure estimation and risk calculation, a decision will be made, with the concurrence from the EPA, that either the screening level ecological risk assessment (Steps 1 and 2) is adequate to determine that ecological threats are negligible, or the process should continue to a more detailed baseline ecological risk assessments (Steps 3 through 8)."

EPA's Comments

The sentence concerning databases should be revised in Amended Draft WP to state that:

> "All of the referenced databases, including other sources, will be consulted for appropriate values. A hierarchy of values will also be established."

The 2nd Paragraph on Page 38 should be excluded from the Amended Draft WP since it is already included in Section 5.6.2.1.4 (Screening Level Ecological Risk Assessment Report).

44. Section 5.6.2.1.4 - Screening Level Ecological Risk Assessment Report (Page 38, 3rd Paragraph)

Draft Work Plan

The Draft WP states that:

> "The Amended Draft SLERA will be prepared and submitted within 14 calendar days of receipt of the EPA's comments. A Final SLERA will be submitted within 14 days of the EPA's approval of the Amended Draft SLERA."

EPA's Comments

The Project Schedule (Appendix C) of the Amended Draft WP should be revised to replace the text "Provide Screening Level Results to EPA" with "submit Draft SLERA Report." Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "The Amended Draft SLERA Report will be prepared and submitted within 45 calendar days of receipt of the EPA's comments on the Draft SLERA Report. A Final SLERA Report will be submitted within 30 days of the EPA's approval of the Amended Draft SLERA Report."

45. Section 5.6.3.1 - Baseline Risk Assessment Problem Formulation, Step 3 (Page 40, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> "At the conclusion of the BERA problem formulation, a Draft DERA Problem Formulation (PF) Report will be prepared and submitted to EPA for review and

approval according to the schedule identified in the Final RI/FS Work Plan. An Amended Draft BERA PF Report will be prepared and submitted to EPA within 14 calendar days of the receipt of their comments related to the Draft BERA PF Report. A Final BERA PF Report will be prepared and submitted to EPA within 14 calendar days of receipt of their comments related to the Amended Draft BERA PF Report."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

"At the conclusion of the BERA problem formulation, a Draft BERA Problem Formulation (PF) Report will be prepared and submitted to EPA for review and approval according to the schedule identified in the Final RI/FS Work Plan. An Amended Draft BERA PF Report will be prepared and submitted to EPA within 30 calendar days of the receipt of the EPA's comments on the Draft BERA PF Report. A Final BERA PF Report will be prepared and submitted to EPA within 14 calendar days of receipt of the EPA's comments on the Amended Draft BERA PF Report."

46. Section 5.6.3.1.4 - Identification of Ecological Receptors (Page 41, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

"Selection of potential target receptors that are likely to occur at or in the general vicinity of the landfill will be completed as part of the problem formulation after conducting a site ecological survey."

EPA's Comments

The Amended Draft WP should be revised to include a detailed description of the landfill/refuse area located in the southwest corner of the Site. The Amended Draft WP should be revised to state that:

"Selection of potential target receptors that are likely to occur at or in the general vicinity of the Site and the landfill/refuse area will be completed as part of the problem formulation after conducting a site ecological survey."

47. Section 5.6.3.1.5 - Identification of Exposure Pathways (Page 42, 2nd Paragraph)

Draft Work Plan

The Draft WP identifies Figure 18 (Ecological Risk Assessment Conceptual Site Model).

EPA's Comments

The Amended Draft WP should be revised to include a legible Figure 18. This figure is difficult to read, even in electronic format. The text "Human Health Risk Assessment" should be removed from the figure, and the figure should consistently be entitled, "Ecological Conceptual Site Model." In addition to a flow diagram, the Ecological Conceptual Site Model (ECO CSM) should also be depicted in a schematic format which is more easily understood by the public. Attachment C (Example Conceptual Site Models [Flow Diagram and Schematic Formats] [on compact disk]) provides examples of CSMs that have been approved by the EPA. The Amended Draft WP should include an ECO CSM (including a HH CSM) which contains similar format and content. NORCO should continue discussions with the EPA concerning the ECO CSM.

The entire refinery should not be included as a single source in the ECO CSM (including the HH CSM). The primary sources should be identified separately as releases from tanks, pipelines, impoundments, and discharges (etc.). The ECO CSM (including the HH CSM) should also consider the releases or possible releases of hazardous substances, pollutants, or contaminants to the refuse area located southwest of the facility; the vacant areas of the facility; the residential areas located immediately adjacent to the facility; the wetland areas located south, southeast, and east of the facility (including the wetland areas located north of Sunray Road); the historical and current docking facilities on Redfish Bay; the entire length of the pipelines leading from the North Site to the historical and current docking facilities; and the historical wastewater discharge outfall point into Corpus Christi Bay.

Each of the General Comments provide the EPA's discussions concerning these comments.

48. Section 5.6.3.1.8 - Conceptual Site Model (Page 44, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "The primary objective of the problem formulation is the development of a working conceptual site model (CSM), ..."

EPA's Comments

Deliverable-Specific Comment 47 (Section 5.6.3.1.5 - Identification of Exposure Pathways) provides the EPA's discussions concerning this statement.

49. Section 5.6.3.2.2 - Exposure Point Concentrations (Page 47, 6th Paragraph)

Draft Work Plan

The Draft WP states that:

> "Potential impacts to ecological receptors in the creek will be evaluated in the ecological risk assessment . . . ."

EPA's Comments

The Amended Draft WP should be revised to exclude the statement concerning a "creek." The EPA is unaware of a creek located on or in the general vicinity of the facility.

50. Section 5.6.4 - Study Design and Data Quality Objective Process (Page 53, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> "An Amended Draft BERA Work Plan and An Amended Draft SAP will be submitted to EPA within 14 calendar days of the receipt of their comments related to the associated draft documents. The Final BERA Work Plan and the Final SAP will be submitted to EPA within 14 calendar days of the receipt of their comments related to the associated amended draft documents."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "An Amended Draft BERA WP and SAP will be submitted to the EPA within 30 calendar days of the receipt of the EPA's comments on the Draft BERA WP and SAP. The Final BERA WP and SAP will be submitted to EPA within 14 calendar days of the receipt of the EPA's comments on the Amended Draft BERA WP and SAP."

51. Section 5.6.7 - Risk Characterization, Step 7 (Page 54, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> "An Amended Draft BERA Report will be submitted to EPA within 14 calendar days of receipt of their comments related to the Draft BERA Report. The Final BERA will be submitted to EPA within 14 calendar days of receipt of their comments related to the Amended Draft BERA Report."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "An Amended Draft BERA Report will be submitted to the EPA within 45 calendar days of receipt of the EPA's comments on the Draft BERA Report. The Final BERA Report will be submitted to the EPA within 30 calendar days of receipt of the EPA's comments on the Amended Draft BERA Report."

52. Section 5.7.2 - Determination of Candidate Technologies and Need for Testing (Page 59, 5th Paragraph)

Draft Work Plan

The Draft WP states that:

> "The Draft CTTM will be submitted to EPA for review and approval according to the project schedule specified in the Final RE/FS Work Plan. An amended Draft CTTM will be prepared and submitted within 14 calendar days of receipt of the EPA's comments related to the Draft CTTM. A Final CTTM will be prepared and submitted within 14 calendar days of receipt of the EPA's comments related to the Amended Draft CTTM."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "The Draft CTTM will be submitted to the EPA for review and approval according to the project schedule specified in the Final RI/FS Work Plan. An Amended Draft CTTM will be prepared and submitted within 30 calendar days of receipt of the EPA's comments on the Draft CTTM. A Final CTTM will be prepared and submitted to the EPA within 14 calendar days of receipt of the EPA's comments on the Amended Draft CTTM."

53. Section 5.7.4 - TS Work Plan Deliverables (Page 63, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "A Draft TS Work Plan will be prepared and submitted to EPA for review 30 days of notice from EPA that treatability studies are required. In addition, a Draft Sampling and Analysis Plan (SAP) and a Draft Health and Safety Plan (HSP) for the TS will also be prepared and submitted to EPA at the same time. An Amended Draft TS Work Plan, Amended Draft SAP and Amended Draft HSP will be submitted to EPA within 14 days of receipt of the EPA's comments on the draft documents. A Final TS Work Plan, SAP and HSP will be submitted to EPA within 14 days of receipt of the EPA's comments on the amended draft documents."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "A Draft TS WP will be prepared and submitted to the EPA for review within 60 days of the receipt of the EPA's notice that treatability studies are required. In addition, a Draft Sampling and Analysis Plan (SAP) and a Draft Health and Safety Plan (HSP) for the TS will also be prepared and submitted to EPA at the same time. An Amended Draft TS WP, SAP and HSP will be submitted to the EPA within 30 calendar days of receipt of the EPA's comments on the Draft WP, SAP, and HSP. A Final TS WP, SAP and HSP will be submitted to the EPA within 14 calendar days of receipt of the EPA's comments on the Amended Draft WP, SAP, and HSP."

54. Section 5.7.5 - Treatability Study Report (Page 64, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> "An Amended Draft TS Report will be submitted within 14 calendar days of receipt of the EPA's comments related to the Draft TS Report. A Final TS Report will be submitted within 14 calendar days of receipt of the EPA."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "An Amended Draft TS Report will be submitted within 45calendar days of receipt of the EPA's comments on the Draft TS Report. A Final TS Report will be submitted within 30 calendar days of receipt of the EPA's comments on the Amended Draft TS Report."

55. Section 5.8.1.1 - Phases of the Feasibility Report (Page 64, 2nd and 3rd Paragraphs)

Draft Work Plan

The Draft WP states that:

> "The tasks that will be completed during the alternative development and screening phase for the Site are identified in Section 2.0.
>
> .....
>
> The tasks that will be completed during the detailed analysis of alternatives for the Site are provided in Section 3.0."

EPA's Comments

The Amended Draft WP should be revised to identify the correct document(s) and sections (i.e., Sections 2.0 and 3.0). General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

56. Section 5.8.2.1 - Task 1, Develop Remedial Action Objectives (Page 66, 3rd Paragraph)

Draft Work Plan

The Draft WP states that:

> "The remediation goals for all carcinogens of concern provides protection with the risk range of 10-4 to 10-7."

EPA's Comments

The EPA's acceptable cancer risk range was revised in 1990 and is discussed in the NCP at 40 CFR §300.430(e)(2)(i)(A)(2). The Amended Draft WP should be revised to state that:

> "The remediation goals for all carcinogens of concern will be within the acceptable risk range of 1.0×10^{-4} to 1.0×10^{-6}, or the probability of one in 10,000 to one in 1,000,000 individuals developing cancer as a result of Site-related contaminants, respectively."

57. Section 5.8.2.2 - Task 2, Develop General Response Actions (Page 66, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "The contents of the tanks and piping in the refinery will be addressed by the Response Action."

EPA's Comments

The Amended Draft WP should be revised to state that:

> "The contents of the tanks and piping leading from the North Site to the historical and current docking areas will be addressed by the ongoing Removal Action and the planned Remedial Action."

General Comments A (Key Definitions), B (Facility [Site] Boundaries), C (Hazard Ranking System Documentation Record), and G (Potentially Responsible Party) provide the EPA's discussions concerning these comments.

58. Section 5.8.2.7.2 - Screening Evaluation (Page 70, 1st and 2nd Paragraphs)

Draft Work Plan

The Draft WP states that:

> "In addition, while the evaluation at this time will be sufficiently detailed to distinguish among alternatives, it will be more general than the final evaluation of the detailed alternatives (Section 3.0).
>
> . . . . . .
>
> If treatability studies are implemented for the Site, these activities will be performed in accordance with the Treatability Study Work Plan (Section X of the RI/FS Work Plan)."

EPA's Comments

The Amended Draft WP should be revised to identify the correct document(s) and sections (i.e., Sections 3.0 and Section X). General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

59. Section 5.8.2.7.2 - Screening Evaluation (Page 71, 5th Paragraph)

Draft Work Plan

The Draft WP states that:

> "After the evaluation has been completed, an Alternative Development and Screening Technical Memorandum will be submitted to the EPA for review and comment. This memorandum will present the tasks performed to screen the remedial alternatives and the recommended remedial alternatives retained to undergo detailed analysis. The EPA will provide written comments to, and, if necessary, either conduct a telephone conference or meet to discuss those comments. The memorandum will be revised and re-submitted with a summary note that states how each of the EPA's comments are addressed."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "After the evaluation is completed, a Draft Alternative Development and Screening Memorandum (ADSM) will be submitted to the EPA for review as specified in the Final RI/FS WP. An Amended Draft ADSM will be submitted to the EPA within 30 calendar days of the receipt of comments on the Draft ADSM. A Final ADSM will be submitted to the EPA within 14 calendar days of the receipt of comments on the Amended Draft ADSM."

60. Section 5.8.3.2 - Evaluation Criteria (Page 73, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> " This memorandum will be submitted for approval in accordance with the schedule identified in Section 5.0."

EPA's Comments

The Amended Draft WP should be revised to specify the appropriate document(s) and section (i.e., Section 5.0). General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments

61. Section 5.8.3.2.3 - Long Term Effectiveness and Permanence (Pages 73 and 74, 2nd and 3rd Paragraphs)

Draft Work Plan

The Draft WP states that:

> "Magnitude of residual risk remaining from untreated waste or treatment residuals at the conclusion of remedial activities. The potential for this risk will be measured by numerical standards such as cancer risk levels, or the volume or concentration of contaminants in remaining waste, media or treatment residuals. The characteristics of the residual will be considered to the degree that they remain hazardous, taking into account their volume, toxicity, mobility, and propensity to bio-accumulate.

> Adequacy and reliability of controls that will be used to manage treatment residuals, or untreated wastes, remaining at the Site. The sufficiency of the site containment systems or institutional controls will be assessed to ensure than any exposure to human and environmental receptors is within protective levels. In addition, the long-term reliability of management controls and potential needs to replace technical components of the alternative will also be evaluated."

EPA's Comments

The Amended Draft WP should be revised into a format that sets these two paragraphs apart from the 1st paragraph of this section. General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

62. Section 5.8.3.2.5 - Short Term Effectiveness (Page 75, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> "The following factors will be evaluated, focusing associated with each: . . . "

EPA's Comments

The Amended Draft WP should be revised to state that:

> "The following factors will be evaluated: . . . ."

General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

63. Section 5.8.5.2 - Detailed Analysis of Alternatives for Remedial Action Reporting (Pages 76 and 77, 2nd Paragraph)

Draft Work Plan

The Draft WP states that:

> "The Amended Draft NACM will be prepared and submitted within 14 calendar days of receipt of EPA's comments to the Draft NCAM. The Final NCAM will be then be prepared and submitted within 14 days of receipt of EPA's comment to the Amended Draft NCAM."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "The Amended Draft NCAM will be prepared and submitted within 30 calendar days of the receipt of the EPA's comments on the Draft NCAM. The Final NCAM will be then be prepared and submitted within 14 calendar days of receipt of the EPA's comments on the Amended Draft NCAM."

64. Section 5.8.5.2 - Detailed Analysis of Alternatives for Remedial Action Reporting (Page 77, 3rd and 5th Paragraphs)

Draft Work Plan

The Draft WP states that:

> "The initial RACA Report will be submitted to EPA for review and approval according to the project schedule specified in the Final RI/FS Work Plan. The Amended Draft RACA Report will be prepared and submitted within 14 calendar days of receipt of EPA's comments to the initial RACA Report. The Final RACA Report will be then be prepared and submitted within 14 days of receipt of EPA's comment to the Amended Draft RACA Report.
>
> .....
>
> The Amended Draft FS Report will be prepared and submitted within 14 calendar days of receipt of the EPA's comments to the Draft FS Report."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> " The Draft Remedial Alternatives Comparative Analysis (RACA) Report will be submitted to EPA for review and approval according to the project schedule specified in the Final RI/FS Work Plan. The Amended Draft RACA Report will be prepared and submitted within 30 calendar days of receipt of the EPA's comments on the Draft RACA Report. The Final RACA Report will be then be prepared and submitted within 14 days of receipt of the EPA's comment on the Amended Draft RACA Report.

The Amended Draft FS Report will be prepared and submitted within 30 calendar days of receipt of the EPA's comments on the Draft FS Report."

65. Section 5.8.5.3 - Final Feasibility Study Report (Page 77, 1st Paragraph)

Draft Work Plan

The Draft WP states that:

> "The Draft FS Report will provide the basis for the proposed plan developed by the EPA and shall document the development and analysis of remedial alternatives. The Draft FS Report will be subject to change following comments received during the public comment period on the EPA's proposed plan. The Final FS Report will be prepared and submitted to EPA within 14 calendar days of receipt of the date that these comments have been received from EPA."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "The Final FS Report will provide the basis for the Proposed Plan developed by the EPA and shall document the development and analysis of remedial alternatives. The Final FS Report will be prepared and submitted to EPA within 14 calendar days of receipt of the EPA's comments on the Amended Draft FS Report."

66. Section 6.0 - Schedule (Page 77, 1st Paragraph, Appendix C [Project Schedule])

Draft Work Plan

This section of the Draft WP discusses the project schedule, which is included as Appendix C (Project Schedule). The Draft WP states that:

> "Monthly the project schedule will be amended and changes to the schedule will be addressed in the Monthly Progress Report."

Appendix C of the Draft WP projects the due date for the following deliverables:

1) Draft RI Report - Due on 10/15/07 (≈8 months after the BHHRA), and

2) Draft FS Report - Due on 2/17/09 (≈16 months after the RI Report).

EPA's Comments

The Amended Draft WP should be revised to state that:

> "The project schedule will be amended on a monthly basis and changes to the schedule will be addressed in the Monthly Progress Report. Changes to the due dates for RI/FS deliverables (specified in the RI/FS SOW) will be approved by the EPA."

The Amended Draft WP should include a revised project schedule to complete the RI/FS. This revised schedule should also reflect the schedule of Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW. The BHHRA, including the SLERA, cannot be completed until all of the RI data is reviewed and qualified and the RI Report is completed. Additionally, the time period in which to submit the FS Report is excessive and will delay the preparation of the Proposed Plan and Record of Decision for the Site. The Draft RI, FS, BHHRA, and SLERA Reports should all be completed and submitted to the EPA at approximately the same time frame. NORCO should continue discussions with the EPA concerning the project schedule.

67. Section 7.0 - Project Management (Page 77, 1st Paragraph)

Draft Work Plan

The Draft WP identifies Figure 19.

EPA's Comments

Figure 19 of the Amended Draft WP should consistently be entitled, "Project Team."

68. Section 7.0 - Project Management (Page 78, 5th Paragraph)

Draft Work Plan

The Draft WP states that:

> "Specific responsibilities concerning sampling, sample shipment and laboratory analysis are addressed in the QA/QCPP."

EPA's Comments

The EPA's QAPP requirements and guidance documents, respectively, entitled; "EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5" (EPA/240/B-01/003, March 2001); and "Guidance for Quality Assurance Project Plans, EPA QA/G-5" (EPA/240/R-02/009, December 2002); provide guidance on the required format and content for a Quality Assurance Project Plan (QAPP) for this project. The Amended Draft WP should be revised to reflect the terminology in the EPA's QAPP requirements and guidance documents. The acronym "QA/QCPP" should be replaced throughout NORCO's deliverables with the acronym "QAPP." General Comments D (Data Quality Objectives) and J (Preparation of the Proposed Plan and Record of Decision) provide the EPA's discussions concerning these comments.

69. Section 8.1 - RI Report (Page 79, 3rd, 4th, and 5th Paragraphs)

Draft Work Plan

The Draft WP states that:

> "The report will focus on the site constituents and media of concern as well as other site-specific conditions and therefore only those subjects identified in EPA's suggested report format that pertain to the Site and the results of the RI will be included in the report."

EPA's Comments

The Amended Draft WP should be revised to state that:

> "The report will focus on the site constituents and media of concern as well as other site-specific conditions. Those subjects identified in the EPA's suggested report format, and others as appropriate, that pertain to the Site and the results of the RI will be included in the report."

General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

Draft Work Plan

The Draft WP states that:

> "The Draft RI Report will be prepared and submitted for EPA review and approval. The Draft RI Report will be submitted after completion of the risk assessment and before completion of the draft report detailing the results of the FS."

EPA's Comments

The BHHRA, including the SLERA, cannot be completed until all of the RI data is reviewed and qualified and the RI Report is completed. The Draft RI, FS, BHHRA, and SLERA Reports should all be completed and submitted to the EPA at approximately the same time frame.

Draft Work Plan

The Amended Draft WP states that:

> "An Amended Draft RI Report will be submitted within 14 days of receipt of the EPA's comments related to the Draft RI Report. The Final RI Report will be submitted within 14 days of receipt of the EPA's comments related to the Amended draft RI Report."

EPA's Comments

Appendix A (Schedule of Deliverables/Meetings) of the AOC's RI/FS SOW includes the schedule for this RI/FS. This schedule should be reflected in the Project Schedule of Appendix C. The Amended Draft WP should be revised to state that:

> "The Draft RI Report will be prepared and submitted to the EPA for review and approval according to the schedule specified in the Final RI/FS WP. The Amended Draft RI Report will be submitted to the EPA for review and approval within 45 calendar days of the receipt of the EPA's comments on the Draft RI Report. A Final RI Report will be submitted to the EPA for review within 30 calendar days of the receipt of the EPA's comments on the Amended Draft RI Report."

70. References

Draft Work Plan

The Draft WP includes references in the text and in the references section of the work plan.

EPA's Comments

The references in the text and in the references section of the Amended Draft WP should be revised into a format in which they can be easily cross-referenced. Perhaps the text of the

Amended Draft WP could refer to the Reference Number identified in the references section of the work plan; or alternatively, the references section could be alphabetized by author or agency for ease of reference. Additionally, the text and the references section of the Amended Draft WP should be reviewed for consistency. An example of one inconsistency is Figure 16 (8 Step Ecological Risk Process), which refers to "Source: EPA, 1997d." The references section of the Draft WP does not list the reference "EPA 1997d." The Amended Draft WP should accurately reflect such references throughout its entirety. General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

Deliverable-Specific Comments
Draft Remedial Investigation and Feasibility Study Field Sampling Plan

The following "Deliverable-Specific Comments" pertain to the EPA's comments on the Draft FSP. The deliverable-specific comments are listed numerically by the sections, pages, and paragraphs (except Deliverable-Specific Comments 71 and 72) corresponding to the Draft FSP required pursuant to the AOC. A paragraph number corresponds to the sequence of a paragraph within a section.

71. Required Statement for Major Deliverables

The Draft FSP submitted by NORCO does not include the required certified statement. Paragraph 30 of the AOC requires that all major deliverables contain the following statement, which should be signed by a responsible corporate official or by NORCO's Project Coordinator. Paragraph 70 of the AOC identifies an original and any revised Sampling and Analysis Plan as a major deliverable. The Amended Draft FSP should include the following statement:

> "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

72. Amended Draft Field Sampling Plan Format and Content

The MDI Final FSP, included as Attachment B (Many Diversified Interests, Inc. Superfund Site; Houston, Texas; Field Sampling Plan and Quality Assurance Project Plan [on compact disk]), is provided as a recent example of a deliverable that has been approved by the EPA. This deliverable was prepared by the EPA's contractor along with technical direction from the MDI Site's RPMs. The Amended Draft FSP should be revised to include similar format and content. General Comments G (Potentially Responsible Party), J (Preparation of the Proposed Plan and Record of Decision), and K (References to the Many Diversified Interests, Inc., Superfund Site; Houston, Texas) provide the EPA's discussions concerning these comments.

73. Section 1.0 - Introduction (Page 1, 3rd and 4th Paragraphs)

Draft Field Sampling Plan

The Draft FSP states that:

> "The QA/QCPP is a companion document to this document and provides information concerning laboratory procedures and the QA/QC procedures that will be employed in this FSP."

EPA's Comments

The EPA's QAPP requirements and guidance documents, respectively, entitled; "EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5" (EPA/240/B-01/003, March 2001); and "Guidance for Quality Assurance Project Plans, EPA QA/G-5" (EPA/240/R-02/009, December 2002); provide guidance on the required format and content for the Quality Assurance Project Plan (QAPP) for this project. Paragraph 21 of the RI/FS SOW specifically requires the use of the EPA's QAPP requirements document, which references the QAPP guidance companion document, for the QAPP's format and the required content. The Amended Draft FSP should be revised to reflect the terminology in the EPA's requirements and guidance documents as follows:

> "The Quality Assurance Project Plan (QAPP) is a companion document to this document and provides information concerning laboratory procedures and the Quality Assurance/Quality Control procedures that will be employed in this FSP."

General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

Draft Field Sampling Plan

The Draft FSP states that:

> "References that are listed in this field sampling plan refer to the same references that were listed in the Falcon Refinery Hazard Ranking System Documentation Record and are included in."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "References that are listed in this FSP refer to the same references identified in the Falcon Refinery 'Hazard Ranking System Documentation Record' (TNRCC, February 2002)."

General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

74. Section 2.0 - Scope of Objectives (Page 1, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "This Field Sampling Plan provides sampling and characterization procedures for activities that may be performed during the execution of the work . . . ."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "This FSP provides sampling and characterization procedures for activities that will be performed, and may be modified, during the execution of the work . . . ."

75. Section 4.0 - Sampling Objectives (Page 2, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "The most significant risk associated with the Site is the potentially hazardous waste that is located in the above ground storage tanks and piping."

EPA's Comments

A determination of the most significant risk associated with the Site will be made in the Final RI/FS Reports, and human health and ecological risk assessments. The Amended Draft FSP should be revised to state that:

> "The most immediate risk associated with the Site is the potentially hazardous waste that is located in the above ground storage tanks and piping."

76. Section 4.0 - Sampling Objectives (Page 2, 3rd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "In addition, several releases that were not scored will also be evaluated in addition to the North Site, which was not evaluated in the HRS."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "The North Site, which was not evaluated during the HRS will also be addressed. Other areas that will be evaluated include other areas of the facility; the residential areas located immediately adjacent to the facility; the wetland areas located south, southeast, and east of the facility (including the wetland areas located north of Sunray Road); the historical and current docking facilities on Redfish Bay; the entire length of the pipelines leading from the North Site to the historical and current docking facilities; and the historical wastewater discharge outfall point into Corpus Christi Bay."

A brief description of each of the areas identified in the EPA's comments should be provided in the Amended Draft FSP. NORCO should continue discussions with the EPA concerning these additional areas. General Comments A (Key Definitions), B (Facility [Site] Boundaries), C (Hazard Ranking System Documentation Record), G (Potentially Responsible Party), H (Superfund Alternative Sites), and I (Documentation of Hazardous Substances and Contaminant Releases to the Environment) provide the EPA's discussions concerning these comments.

77. ***Section 4.0 - Sampling Objectives (Page 2, 4th Paragraph)***

Draft Field Sampling Plan

The Draft FSP states that:

> "Objectives of the FSP data will include; definition of the nature and extent of contamination using biased and random sampling, analysis of statistically representative samples, analysis of fate and transport parameters, sample collection to develop a Baseline Human Health and Ecological Risk Assessment and a Baseline Ecological Risk Assessment and analysis of Treatability candidate technologies."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "The EPA's Data Quality Objectives (DQO) guidance document entitled, 'Guidance for the Data Quality Objectives Process' (EPA QA/G-4, EPA/600/R-96/055, August 2000) was used in the development of the objectives for this FSP.

This document describes the use of the DQO Process, a seven-step planning approach to develop sampling designs for data collection activities, in planning data collection efforts and development of an appropriate data collection design to support decision making. The DQO Process should be used during the planning stage of any study that required data collection, before the data are collected. The final outcome of the DQO Process is a design for collecting data (e.g., the number of samples to collect, and when, where, and how to collect these samples) together with limits on the probabilities of making decision errors. The data acquired during the RI will be analyzed to determine if the data is sufficient to meet the established DQOs set forth in the Quality Assurance Project Plan.

Objectives of the FSP data will include definition of the nature and extent of on- and off-site contamination using judgmental (biased) and random sampling, analysis of statistically representative samples, and analysis of fate and transport parameters that will be used in the development of a RI/FS Report, Baseline Human Health and Screening-Level Ecological Risk Assessments, Baseline Ecological Risk Assessment (if necessary), Proposed Plan, and Record of Decision."

General Comments D (Data Quality Objectives), E (Sampling Design), and J (Preparation of the Proposed Plan and Record of Decision) provide the EPA's discussions concerning these comments.

78. Section 4.0 - Sampling Objectives (Page 2, 5th Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

"A summary table of the samples to be collected in each source area (SA) is presented Table 1. Exact sample locations will be determined in the field based on field conditions and biased to target areas or intervals of highest suspected concentrations."

EPA's Comments

The Amended Draft FSP should be revised to state that:

"Table 1 (Summary of Sampling and Analysis Program) is a summary table of the samples to be collected in each source area (SA) identified in the HRS Documentation Record; the North Site; select residential areas located immediately adjacent to the facility; the wetland areas located south, southeast, and east of the facility (including the wetland areas located north of Sunray

Road); the historical and current docking facilities on Redfish Bay; the entire length of the pipelines leading from the North Site to the historical and current docking facilities; and the historical wastewater discharge outfall point into Corpus Christi Bay. Sample locations are depicted in the maps included with this FSP. Exact sample locations will be determined in the field based on field conditions. The judgmental (biased) samples will be taken from the known source areas or intervals of highest suspected or known concentrations. Random samples will be collected from each area as discussed in this FSP."

NORCO should continue discussions with the EPA concerning the summary tables and the areas to be addressed. Each of the General Comments provide the EPA's discussions concerning these comments. Attachment E (Example Sampling Design Summary Tables [on compact disk]) provides an example format and content for sample summary tables that have been approved by the EPA. Table 1 of the Amended Draft FSP should be revised to include similar format and content.

79. Section 5.0 - Sample Locations and Frequency (Page 2, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "Falcon Refinery, which includes the main processing and storage area (South Site) and the truck rack and storage area (North Site), is separated into two properties by Bishop Road and FM 2725 (Figure 1). The field sampling plans for each Site will be discussed separately."

EPA's Comments

Figure 1 (Overall Refinery Map) should be revised since the paper copy is difficult to read. Additionally, the Amended Draft FSP should be revised to state that:

> "Falcon Refinery, which includes the main processing and storage area (South Site) and the truck rack and storage area (North Site), is separated into two properties by Bishop Road and FM 2725 (Figure 1). The field sampling plans for each Site will be discussed separately. The other areas of the facility, including the on-site and off-site areas of the Site, described in Section 4.0 (Sampling Objectives) of this FSP, will also be discussed separately."

Each of the General Comments provide the EPA's discussions concerning these comments.

80. Section 5.0 - Sample Locations and Frequency (Pages 2 and 3, 2nd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "Soil sample locations will be selected consistent with the purpose of the investigation for each potential source area (SA). Conservatively biased sampling schemes will generally be employed and exact sample locations may be modified due to field conditions. Due to the shallow depth to groundwater typically two soil samples will be analyzed from each boring; from the interval with the highest photoionization detector (PID) reading and from the soil interval at the first contact with groundwater. In the event that no PID readings are detected the first soil sample will be obtained in the 0 to 2-foot interval below ground surface (bgs)."

EPA's Comments

This paragraph should be excluded from Section 5.0 of the Amended Draft FSP since this information is already included in the discussion of each source area. Additionally, the subsections of Section 5.0 also discuss sampling schemes for ground water and sediments, not only soil. The title of Section 5.0 of the Amended Draft FSP should be changed from "Sampling Locations and Frequency" to "Judgmental Sampling Locations and Frequency." The 2nd paragraph of Section 5.0 of the Amended Draft FSP should be revised to state that:

> "Judgmental soil sampling locations and frequency, for each of the areas described in Section 4.0 (Sampling Objectives) of this FSP, were selected consistent with the goals and outcome of the Data Quality Objectives Process. Conservatively biased sampling schemes will generally be employed for the judgmental sample locations (i.e., areas of known contamination or hot spots) and exact locations may be modified due to field conditions."

The Amended Draft FSP should be revised to include a separate section (e.g., #.0) entitled, "Random Sampling Locations and Frequency," which should include the same general information presented in Section 5.0. This separate section should discuss the random sampling scheme for the HRS source areas; other areas of the facility; the North Site; select residential areas located immediately adjacent to the facility; the wetland areas located south, southeast, and east of the facility (including the wetland areas located north of Sunray Road); the historical and current docking facilities on Redfish Bay; the entire length of the pipelines leading from the North Site to the historical and current docking facilities; and the historical wastewater discharge outfall point into Corpus Christi Bay. Attachment F (Example Judgmental and Random Grid Sampling Designs [on compact disk]) provides examples of judgmental and random grid

sampling designs that have been approved by the EPA. Similar sampling approaches, developed during the DQO Process for this project, should be considered in the sampling design presented in the Amended Draft FSP. NORCO should continue discussions with the EPA concerning the judgmental and random sampling schemes and the areas to be addressed. Each of the General Comments provide the EPA's discussions concerning these comments.

81. Section 5.1.2 - North Site Status as of August 2004 (Pages 3 and 4, 2nd and 4th Paragraphs)

Draft Field Sampling Plan

The Draft FSP states that:

> "While the Site was unlocked, prior to the initiation of the Removal Action Work Plan, personnel from the neighborhood poured used motor oil around this tank (Site Photograph 2)."

EPA's Comments

The statement concerning personnel from the neighborhood has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. This statement should be revised in the Amended Draft FSP to state that:

> "It appears that used motor oil was poured around this tank (Site Photograph 2)."

General Comments A (Key Definitions [Potentially Responsible Party]) and G (Potentially Responsible Party) provide the EPA's discussions concerning these comments.

Draft Field Sampling Plan

The Draft FSP states that:

> "After the removal of the tank the grossly impacted soil will be excavated and treated in a remediation cell at the South Site during the Removal Action. New soil will be brought to the site to fill in the excavation. No other areas at the North Site have indications of grossly stained soil."

EPA's Comments

The entire Section 5.0 of the Amended Draft FSP should be revised to state that:

> "After the removal of the tank, the grossly impacted soil will be excavated and treated in a remediation cell, approved by the EPA and TCEQ, located at the

South Site under the Removal Action. The grossly impacted soil will be determined visually. These contaminated areas will be delineated during the RI/FS, and the treatment cell, if approved, will be addressed in the feasibility study for the Site. Any backfill soil brought to the Site to fill in the excavations will be analyzed for hazardous substances, pollutants, or contaminants. These soils will not contain any organics, and the metals will not exceed background."

82. Section 5.1.3 - Adjoining Plains Marketing Facility (Page 4, 2nd and 3rd Paragraphs)

Draft Field Sampling Plan

The Draft FSP references Figure 3 and Table 2 and states that:

> "Monitor wells MW-1, MW-2, MW-3 and MW-4 (Figure 4), which are not included in the area that is defined by . . . . Review of the project file at the TCEQ indicates that these monitor wells were only sampled once in November, 1995 and that the analytical results for MW-1, MW-2 and MW-3 indicated that the groundwater was contaminated (Table 3). These monitor wells are immediately up-gradient of the North Site and have likely impacted the NORCO facility. The TCEQ has the information that indicates that the Plains facility near the North Site is contaminated yet has not required any delineation, additional sampling or remediation."

EPA's Comments

The Amended Draft WP should be revised to include legible Figures 3 and 4 and to reflect the monitoring well numbers depicted in Figure 4, "W-1, W-2, W-3, and W-4." Tables 2 and 3 should be revised to identify "TPH TX 1005" and "TPH-D," respectively. Any impacts to the ground water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. The Amended Draft WP should be revised to state that:

> "Monitor wells W-1, W-2, W-3 and W-4 (Figure 4), which are not included in the area that is defined by . . . . Review of the project file at the TCEQ indicates that these monitor wells were only sampled once in November 1995 and that the analytical results for W-1, W-2 and W-3 indicated that the groundwater was contaminated (Table 3). These monitor wells are immediately upgradient of the North Site and the possibility exists that the ground water underlying the NORCO facility may have been impacted. This possibility will be investigated during the RI/FS planned for the Site."

General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

Paragraph 14 of the RI/FS SOW states that:

> "The Respondent shall compile existing data which resulted from any previous sampling events that may have been conducted on and near the Site. The Respondent shall gather existing data which describes previous responses that have been conducted on and near the Site by local, state, federal, or private parties."

The Amended Draft FSP (or Amended Draft WP) should include a detailed discussion of the historical and current status of PMs VCP, including the associated documentation and monitoring well completion information. This discussion should also include the activities conducted by entities prior to PM. The purpose of this detailed discussion is to determine the possible impact the ground water contamination at PM may have on this RI/FS. The TCEQ's contact person for PM's VCP is Mr. Stu Goldsmith. He can be reached at 512-239-2960.

83. Section 5.1.4 - Proposed North Site Soil Investigation (Pages 4 and 5)

Draft Field Sampling Plan

The Draft FSP provides the rationale for selecting the locations of North Site soil borings and states that:

> "Samples will be obtained from the highest PID reading and from the soil sample interval at the initial contact with groundwater using SOP 5. In the event that there are no PID readings a sample from the 0 to 2-foot interval will be analyzed. Samples will be analyzed for 'Skinner List' constituents (Table 4) that include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and inorganics. Each boring will be advanced a minimum of five feet below the initial contact with groundwater."

EPA's Comments

The "judgmental" sampling design for the soils presented in the Draft FSP significantly relied upon the known source areas identified in the HRS Documentation Record. The EPA agrees that a judgmental sampling design would be appropriate for the known source areas of contamination or "hot spots;" however, a judgmental sampling design alone does not meet the EPA's requirements for a well-developed sampling design that can be used to support human health and ecological risk assessments for this Site. A well-developed sampling design plays a critical role in ensuring that data are of sufficient quantity and quality to reach the conclusions needed (e.g., to support a decision about whether contamination levels exceed a threshold of unacceptable risk), and are adequately representative of the target population and defensible for their intended use.

The number of judgmental (and random) samples to be collected, and when, where, and how to collect these samples will be the final outcome of the DQO Process. *The entire Section 5.0 of the Amended Draft FSP should be revised to reflect this approach in the selection of judgmental samples.* NORCO should continue discussions with the EPA concerning the proposed "judgmental" sampling design, including the designation of "background." Attachment F (Example Judgmental and Random Grid Sampling Designs [on compact disk]) provides examples of judgmental and random grid sampling designs that have been approved by the EPA. Similar sampling approaches, developed during the DQO Process for this project, should be considered in the sampling design presented in the Amended Draft FSP. Each of the General Comments provide the EPA's discussions concerning these comments.

The EPA's "Skinner List" guidance document entitled, "Guidance on Petroleum Refinery Waste Analyses for Land Treatment Permit Applications" (Office of Solid Waste; April 3, 1984) states that:

> "The purpose of this memo is to provide [Resource Conservation and Recovery Act] permit writers guidance on evaluating petroleum refinery waste analyses submitted in land treatment permit applications. A list of Appendix VIII hazardous constituents suspected to be present in petroleum refinery wastes and a special analytical method for refinery wastes are provided."

This guidance document contains a listing of constituents (Skinner List) suspected to be present in petroleum refinery wastes. Other relatively recent references modify this listing. NORCO proposes to investigate the Site for those constituents listed in Tables 4a (Skinner List Constituents [Soil]) and 4b (Skinner List Constituents [Water]). The NCP applies to releases into the environment of hazardous substances, and pollutants or contaminants. The refinery has historically managed wastes other than those related to petroleum refining. *The entire Section 5.0 of the Amended Draft FSP should be revised to include sampling for these hazardous substances, pollutants or contaminants.* NORCO should continue discussions with the EPA concerning the proposed sampling plan and constituents, including the designation of "background." General Comment A (Key Definitions [Hazardous Substance, Pollutant or Contaminant]) provides the EPA's discussions concerning these comments.

84. Section 5.1.4 - Proposed North Site Soil Investigation (Page 5, 3rd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "After the borings are sampled they will either be converted to monitor wells using SOP 8 or plugged and abandoned using SOP 12. Maps will be prepared that show the boring locations and any COCs that were detected in the soil."

EPA's Comments

The entire Section 5.0 of the Amended Draft FSP should be revised to state that:

> "After the borings are sampled they will either be converted to monitor wells using SOP 9 (Monitor Well Installation) or plugged and abandoned using SOP 12 (Borehole Abandonment). In addition to the borings that are proposed to be converted into monitoring wells, borings will also be converted to monitoring wells if contaminants are detected in the ground water during the advancement of these borings and after consultation with a geologist or hydrogeologist. Maps will be prepared that show the boring locations and any chemicals of potential concern (COPCs) that were detected in the soil and ground water. These maps will specifically identify which COPCs exceeded the established soil and ground water screening levels."

85. Section 5.1.5 - Proposed North Site Ground Water (Pages 5 and 6, 1st and 3rd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> ". . . borings are proposed to be converted into monitor wells . . . using the protocol described in SOP 8 . . . .
>
> . . . . . .
>
> Soil . . . will be visually classified in the field at the time of collection using SOP 5. . . . If a non-aqueous phase liquid (NAPL) is not encountered the maximum depth of the borings is anticipated to be 20 feet bgs."

EPA's Comments

The entire Section 5.0 of the Draft FSP should be revised to state that:

> ". . . borings are proposed to be converted into monitor wells . . . using the protocol described in SOP 9 (Monitoring Well Installation) . . . .
>
> . . . . . .
>
> Soil . . . will be visually classified in the field at the time of collection using SOP 8 (Soil Classification)."

NORCO should continue discussions with the EPA concerning the anticipated depth of all the borings to be converted into monitoring wells and discussed in Section 5.0. General Comments D (Data Quality Objectives) and E (Sampling Design) provide the EPA's discussions concerning these comments.

86. Section 5.2.1.2 - South Site Source Area 1 Sampling Data (Page 7, 2nd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "The results of the analyses are compared to the Total Soil Combined Residential, Protective Concentration Limit (PCL) as established by the TCEQ for comparison. Results at the soil sampling from this source area in the HRS are significantly below the values that would be acceptable for residential soil."

EPA's Comments

The Amended Draft FSP should be revised to exclude comparisons of the HRS analytical data to State PCLs in the discussion of the five source areas identified in the HRS Documentation Record. Any impacts to the soil from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. PRGs (i.e., Region 6 MSSLs, Ecological Screening Levels, and ARARs) should be established early in the RI/FS; specifically, during the "scoping" phase of the RI/FS. These risk-based screening levels, which will be used to develop a FSP and QAPP for this Site, may or may not be more stringent than the State's PCLs. Additionally, the analytical detection limits utilized in the HRS may have exceeded human health or ecological screening levels and would not be suitable for this RI/FS. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

87. Section 5.2.1.5 - Proposed South Site Source Area 1 Ground Water Investigation (Pages 8 and 9, 1st and 5th Paragraphs)

Draft Field Sampling Plan

The Draft FSP states that:

> "The wells are intended to give an initial understanding of the South Site Source Area 1 hydrogeological conditions and the potential impacts to the wetlands."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "The wells are intended to give an initial understanding of the South Site Source Area 1 hydrogeological conditions and the current potential impacts to the wetlands. Any impacts to the wetlands will be identified during the RI/FS for the Site."

Draft Field Sampling Plan

The Draft FSP states that:

> "The elevation of the proposed monitor wells is significantly lower that the elevation of the tanks and berms around the tanks. Sampling of the monitor wells will provide evidence to determine if the wetlands are being impacted by impacted groundwater."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "Sampling of the monitoring wells will provide evidence to determine if the wetlands are currently being impacted by potential contaminants in the groundwater. Any impacts to the wetlands from the ground water will be determined during the RI/FS for the Site."

88. Section 5.2.2.1 - South Site Source Area 2 Background Information (Page 9, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "There is no further information available to justify the selection of this area as a source area."

EPA's Comments

This statement should be excluded from the Amended Draft FSP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

89. Section 5.2.2.2 - South Site Source Area 2 Sampling Data (Page 9, 2nd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "However, compared to the TCEQ residential PCL only benzo(a)pyrene with of value of 0.740 mg/kg as compared to 0.56 mg/kg, exceeded the PCL (Figure 12)."

EPA's Comments

The Amended Draft FSP should be revised to exclude comparisons of the HRS analytical data to State PCLs in the discussion of the five source areas identified in the HRS Documentation Record. Any impacts to the soil, sediment, surface water, and ground water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. PRGs (Region 6 MSSLs, Ecological Screening Levels, and ARARs) should be established early in the RI/FS; specifically, during the "scoping" phase of the RI/FS. These risk-based screening levels, which will be used to develop a FSP and QAPP for this Site, may or may not be more stringent than the State's PCLs. Additionally, the analytical detection limits utilized in the HRS may have exceeded human health or ecological screening levels and would not be suitable for this RI/FS. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

90. Section 5.2.2.3 - South Site Source Area 2 Status as of August 2004 (Page 9, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "There is no evidence of spilled benzene."

EPA's Comments

This statement should be excluded from the Amended Draft FSP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. Any impacts from hazardous substances, pollutants, or contaminants will be determined during the RI/FS for the Site. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

91. Section 5.2.3.2 - South Site Source Area 3 Sampling Data (Page 11, 2nd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "Results of the HRS sampling revealed that from the total of 12 samples only Thallium, a naturally occurring mineral, was detected above the TCEQ residential PCL (Figure 15)."

EPA's Comments

The Amended Draft FSP should be revised to exclude comparisons of the HRS analytical data to State PCLs in the discussion of the five source areas identified in the HRS Documentation Record. Any impacts to the soil, sediment, surface water, and ground water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. PRGs (Region 6 MSSLs, Ecological Screening Levels, and ARARs) should be established early in the RI/FS; specifically, during the "scoping" phase of the RI/FS. These risk-based screening levels, which will be used to develop a FSP and QAPP for this Site, may or may not be more stringent than the State's PCLs. Additionally, the analytical detection limits utilized in the HRS may have exceeded human health or ecological screening levels and would not be suitable for this RI/FS. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

92. Section 5.2.3.4 - Proposed South Site Source Area 3 Soil Investigation (Page 12, 2nd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "Borings . . . will assess the northeast perimeter of South Site Source Area 3, any residual effects from the pipeline spill and determine if any COCs have migrated off-site in the direction of the neighborhood on Thayer Road;"

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "Borings . . . will assess the northeast perimeter of South Site Source Area 3, any residual effects from the pipeline spill and determine if any COPCs are currently migrating off-site in the direction of the neighborhood on Thayer Road. Any impacts to the residential areas in the vicinity of the facility will be determined during the RI/FS for the Site;"

93. ***Section 5.2.3.5 - Proposed South Site Source Area 3 Ground Water Investigation (Page 13, 1st Paragraph)***

Draft Field Sampling Plan

The Draft FSP states that:

> "The wells are intended to give an initial understanding of the South Site Source Area 3 hydrogeological conditions and the potential impacts to the wetlands and the neighborhood on Thayer Road."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "The wells are intended to give an initial understanding of the South Site Source Area 3 current hydrogeological conditions and the current potential impacts to the wetlands and the neighborhood on Thayer Road. Any impacts to the wetlands and the neighborhood on Thayer Road will be determined during the RI/FS for the Site."

94. ***Section 5.2.4.2 - South Site Source Area 4 Sampling Data (Page 14, 1st Paragraph)***

Draft Field Sampling Plan

The Draft FSP states that:

> "For the HRS two samples SO-31 and SO-34 were analyzed and only lead and zinc were detected above the laboratory detection limit and the concentrations were significantly less than the TCEQ residential PCL (Figure 18)."

EPA's Comments

The Amended Draft FSP should be revised to exclude comparisons of the HRS analytical data to State PCLs in the discussion of the five source areas identified in the HRS

Documentation Record. Any impacts to the soil, sediment, surface water, and ground water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. PRGs (i.e., Region 6 MSSLs, Ecological Screening Levels, and ARARs) should be established early in the RI/FS; specifically, during the "scoping" phase of the RI/FS. These risk-based screening levels, which will be used to develop a FSP and QAPP for this Site, may or may not be more stringent than the State's PCLs. Additionally, the analytical detection limits utilized in the HRS may have exceeded human health or ecological screening levels and would not be suitable for this RI/FS. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

95. Section 5.2.4.3 - South Site Source Area 4 Status as of August 2004 (Page 14, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "There is no evidence of the deposited API separator sludge."

EPA's Comments

This statement should be excluded from the Amended Draft FSP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. Any impacts from hazardous substances, pollutants, or contaminants will be determined during the RI/FS for the Site. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

96. Section 5.2.4.5 - Proposed South Site Source Area 4 Ground Water Investigation (Page 14, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "No monitor wells are proposed for this source area do to the minimal impact that was detected during the HRS."

EPA's Comments

This statement should be excluded from the Amended Draft FSP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

97. Section 5.2.5.1 - South Site Source Area 5 Background Information (Page 15, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "The sludge, which was allegedly 'dumped on the ground' in 1986 was in fact never sampled, instead the lone sample, collected by the TWC from 1986 that showed elevated concentrations of chromium (8020 mg/kg) was taken directly from the cooling tower not from a soil sample."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "The sludge, which was reportedly disposed of on the ground in 1986 showed elevated concentrations of chromium (8020 mg/kg). Laboratory reports indicate that samples were taken from the cooling tower and soils."

General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

98. Section 5.2.5.2 - South Site Source Area 5 Sampling Data (Page 15, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "Analysis of sample SO-28 revealed that only Thallium was detected above the TCEQ residential PCL (Figure 20)."

EPA's Comments

The Amended Draft FSP should be revised to exclude comparisons of the HRS analytical data to State PCLs in the discussion of the five source areas identified in the HRS Documentation Record. Any impacts to the soil, sediment, ground water, and surface water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. PRGs (i.e., Region 6 MSSLs, Ecological Screening Levels, and ARARs) should be established early in the RI/FS; specifically, during the "scoping" phase of the RI/FS. These risk-based screening levels, which will be used to develop a FSP and QAPP for this Site, may or may

not be more stringent than the State's PCLs. Additionally, the analytical detection limits utilized in the HRS may have exceeded human health or ecological screening levels and would not be suitable for this RI/FS. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

99. Section 5.2.5.3 - South Site Source Area 5 Status as of August 2004 (Page 15, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "There is no evidence of dumped cooling tower sludge."

EPA's Comments

This statement should be excluded from the Amended Draft FSP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. Any impacts from hazardous substances, pollutants, or contaminants will be determined during the RI/FS for the Site. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

100. Section 5.3 - Sediment Sampling Plan (Page 16, 2nd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "The proposed sampling locations in this report to this point are intended to evaluate source areas as required in the EPA protocol."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "The proposed judgmental (including random) sampling locations are intended to evaluate source areas and any other on- and off-site areas where contamination has come or has the potential to be located, as required in the EPA protocol."

Each of the General Comments provide the EPA's discussions concerning these comments.

101. Section 5.3 - Sediment Sampling Plan (Page 16, 3rd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "Clearly the wetlands are not a source of contamination, if any contamination exists in the wetlands the contamination migrated to the wetlands from the refinery or other adjacent sources."

EPA's Comments

This statement should be excluded from the Amended Draft FSP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. Any impacts to or from the wetlands from hazardous substances, pollutants, or contaminants will be determined during the RI/FS for the Site. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

102. Section 5.3 - Sediment Sampling Plan (Page 16, 4th Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "By including sediment sampling in this initial phase of the RI/FS this plan is not in compliance with the provisions of the 'Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA.' However; at every meeting with the EPA the staff of the EPA has insisted on including sediment sampling in the initial sampling phase. In an effort to appease the staff of the EPA the following sediment sampling is proposed."

EPA's Comments

By including sediment sampling in this phase of the RI/FS, the EPA will investigate the nature and extent of known and potential releases of hazardous substances, pollutants, or contaminants to the on- and off-site wetland areas. The statement in the Draft FSP concerning noncompliance with RI/FS Guidance should be excluded from the Amended Draft FSP. The EPA determines compliance with EPA RI/FS guidance. The statement in the Draft FSP concerning NORCO's proposed sediment sampling to "appease the staff of the EPA" should also be excluded from the Amended Draft FSP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. Each of the General Comments provide the EPA's discussions concerning these comments.

103. Section 5.3.2 - Sediment Sampling Data (Page 17, 1st, 2nd, 3rd, and 4th Paragraphs)

Draft Field Sampling Plan

The Draft FSP states that:

> "During the HRS the TNRCC obtained and analyzed six samples that were specifically chosen to specifically evaluate the two drainage pathways. The samples SE-18, SE-19, SE-20, SE-21, SE-22 and SE-23, were analyzed for Volatile Organics, Semi-Volatile Organics, Metals/Cyanide and Pesticides/PCB (Figure 24). Results of the analyses indicated that samples SE-22 and SE-23, which are located at Drainage Pathways No.1, did not have a single compound above the laboratory detection limit or above background concentrations. These data should eliminate Drainage Pathway No.1 from further analysis.
>
> Sediment samples SE-18 and SE-19, which were located in the wetlands across Bishop Road from the site also had no constituents above the laboratory detection limits or above background.
>
> Sediment sample SE-20 had two constituents that were reported in the HRS, barium and manganese. However, the concentrations in the sediment samples 0.138 mg/kg and 0.358 mg/kg were significantly less than the background concentrations of 104.0 mg/kg and 250 mg/kg. Clearly the results of SE-20 indicate no contamination.
>
> Sediment sample SE-21 had several constituents reported in the HRS however the concentrations for fluoranthene, pyrene, benzo(b)fluoranthene, indeno(1,2,3,-cd)pyrene and barium were below the laboratory quantitation limit and as indicated in the report the values are not valid. Only chrysene with a concentration of 0.56 mg/kg and benzo(g,h,I,) perylene with a concentration of 1.2 mg/kg were adequately reported. The TCEQ sediment protective concentration limit for humans is 1,600 mg/kg for chrysene and 3,700 mg/kg for benzo(g,h,I,) perylene, indicating that the concentration in the sediment were orders of magnitude below the protective concentration according to the TCEQ."

EPA's Comments

The statements in the Draft FSP concerning the elimination of drainage pathways (in the 1st paragraph of page 17) and the indications of "no contamination" (3rd paragraph of page 17) should be excluded from the Amended Draft FSP. Any impacts to or from the wetlands from hazardous substances, pollutants, or contaminants will be determined during the RI/FS for the

Site. The Amended Draft FSP should be revised to exclude comparisons of the HRS analytical data to State PCLs in the discussion of the five source areas identified in the HRS Documentation Record. Any impacts to the soil, sediment, ground water, and surface water from a hazardous substance, pollutant, or contaminant will be determined during the RI/FS for the Site. PRGs (i.e., Region 6 MSSLs, Ecological Screening Levels, and ARARs) should be established early in the RI/FS; specifically, during the "scoping" phase of the RI/FS. These risk-based screening levels, which will be used to develop a FSP and QAPP for this Site, may or may not be more stringent than the State's PCLs. Additionally, the analytical detection limits utilized in the HRS may have exceeded human health or ecological screening levels and would not be suitable for this RI/FS. Also, the PCLs cited in the Draft FSP, and listed in Table 1 of the Draft WP, are direct human contact sediment PCLs that would not be relevant or applicable to ecological receptors. General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

104. Section 5.3.3 - Sediment Sampling Status as of August 2004 (Page 17, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "There is no visual evidence of the contamination in either drainage pathway."

EPA's Comments

This statement should be excluded from the Amended Draft FSP since it has no relevance to this investigation and NORCO's responsibility, under the AOC for a RI/FS, to investigate the Site. Any impacts from hazardous substances, pollutants, or contaminants will be determined during the RI/FS for the Site. Each of the General Comments provide the EPA's discussions concerning these comments.

105. Section 5.3.4 - Proposed Sediment Sampling Investigation (Pages 17 and 18, 1st and 2nd Paragraphs)

Draft Field Sampling Plan

The Draft FSP states that:

> "Three borings are proposed to be advanced within Drainage Pathway 1 (DP1) to assess the current sediment quality of this area (Figure 25) using the procedures outlined in standard operating procedure (SOP) 17. Samples will be obtained from the 0.0 to 2.0 foot interval and the PID readings will be obtained.

. . . . . .

> Three borings are proposed to be advanced within Drainage Pathway 2 (DP2) to assess the current sediment quality of this area (Figure 26) using the procedures outlined in standard operating procedure (SOP) 17. Samples will be obtained from the 0.0 to 2.0 foot interval and the PID readings will be obtained."

EPA's Comments

The "judgmental" sampling design for the sediments presented in the Draft FSP significantly relied upon the known source areas identified in the HRS Documentation Record. The EPA agrees that a judgmental sampling design would be appropriate for the known source areas of contamination or "hot spots;" however, a judgmental sampling design alone does not meet the EPA's requirements for a well-developed sampling design that can be used to support human health and ecological risk assessments for this Site. A well-developed sampling design plays a critical role in ensuring that data are of sufficient quantity and quality to reach the conclusions needed (e.g., to support a decision about whether contamination levels exceed a threshold of unacceptable risk), and are adequately representative of the target population and defensible for their intended use.

The number of judgmental (and random) samples to be collected, and when, where, and how to collect these samples will be the final outcome of the DQO Process. NORCO should continue discussions with the EPA concerning the proposed "judgmental" sampling design, including the designation of "background." Each of the General Comments provide the EPA's discussions concerning these comments.

The Amended Draft FSP should be revised to include a separate section (e.g., #.0) entitled, "Random Sampling Locations and Frequency," which should include the same general information presented in Section 5.0. This separate section should discuss the random sampling scheme for the wetland areas located south, southeast, and east of the facility (including the wetland areas located north of Sunray Road); the historical and current docking facilities on Redfish Bay; the entire length of the pipelines leading from the North Site to the historical and current docking facilities; and the historical wastewater discharge outfall point into Corpus Christi Bay. NORCO should continue discussions with the EPA concerning a random sampling design, including the designation of "background." Attachment F (Example Judgmental and Random Grid Sampling Designs [on compact disk]) provides examples of judgmental and random grid sampling designs that have been approved by the EPA. Similar sampling approaches, developed during the DQO Process for this project, should be considered in the sampling design presented in the Amended Draft FSP. Additionally, a "Standard Operating Procedure" for "Sediment Sampling" should be included in the Amended Draft FSP. Each of the General Comments provide the EPA's discussions concerning these comments.

106. Section 5.3.5 - Proposed Sediment Ground Water Investigation (Page 18, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "No monitor wells are proposed for this source area do to the minimal impact that was detected during the HRS and the fact that the site is often inundated."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "No monitor wells are proposed for this source area."

General Comment C (Hazard Ranking System Documentation Record) provides the EPA's discussions concerning these comments.

107. Section 5.4 - Proposed Surface Water Sampling (Page 18, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "When surface water is available near Drainage Points No.1 and No.2 a sample will be obtained adjacent to each drainage point using the procedures in SOP 21. Samples will be analyzed for 'Skinner List' constituents (Table 4b) that include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and inorganics."

EPA's Comments

NORCO should continue discussions with the EPA concerning the proposed surface water sampling design, including the designation of "background." Each of the General Comments provide the EPA's discussions concerning these comments.

108. Section 6.0 - General Sampling Protocols (Page 19, 2nd Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

"Sampling equipment will be cleaned in accordance with protocol described in SOP 21."

EPA's Comments

The Amended Draft FSP should be revised to state that:

"Sampling equipment will be cleaned in accordance with the protocol described in SOP 11 (Equipment Decontamination)."

109. Section 6.1 - Surface Soil (Page 19, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

"Detailed instructions are included in SOPs 4, 5, 8, 17 and 19."

EPA's Comments

The Draft FSP does not include SOP 4. The Amended Draft FSP should be revised to state that:

"Detailed instructions are included in SOPs 5 (Obtaining Soils Samples), 8 (Soil Classification), 17 (Soil Borings), and 19 (Sample Handling and Shipping)."

110. Section 6.2 - Subsurface Soil (Page 20, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

"Detailed instructions are included in SOPs 4, 5, 8, 17 and 19."

EPA's Comments

The Draft FSP does not include SOP 4. The Amended Draft FSP should be revised to state that:

"Detailed instructions are included in SOPs 5 (Obtaining Soils Samples), 8 (Soil Classification), 17 (Soil Borings), and 19 (Sample Handling and Shipping)."

111. Section 6.3 - Monitor Well Installation Procedures (Page 21, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "Monitor wells will be installed as referenced in SOP 8 . . . ."

EPA's Comments

The Amended Draft FSP should be revised to state that:

> "Monitor wells will be installed as referenced in SOP 9 (Monitoring Well Installation) . . . ."

112. Section 6.7 - Sediment Sampling (Page 22, 1st Paragraph)

Draft Field Sampling Plan

The Draft FSP states that:

> "All sediment samples will be obtained using the following procedures."

EPA's Comments

The Amended Draft FSP should be revised to include a "Standard Operating Procedure" for "Sediment Sampling."

113. References and Standard Operating Procedures

Draft Field Sampling Plan

The Draft FSP includes "references" and "standard operating procedures" (SOPs) in the text and attachments.

EPA's Comments

The "references" and "SOPs" included in the attachments of the Draft FSP should be revised in the Amended Draft FSP into a format in which they can be easily cross-referenced with the text. General Comment J (Preparation of the Proposed Plan and Record of Decision) provides the EPA's discussions concerning these comments.

Deliverable-Specific Comments
Draft Remedial Investigation and Feasibility Study Quality Assurance Project Plan

The following "Deliverable-Specific Comments" pertain to the EPA's comments on the Draft QAPP required pursuant to the AOC.

114. Required Statement for Major Deliverables

The Draft QAPP submitted by NORCO does not include the required certified statement. Paragraph 30 of the AOC requires that all major deliverables contain the following statement, which should be signed by a responsible corporate official or by NORCO's Project Coordinator. Paragraph 70 of the AOC identifies an original and any revised Sampling and Analysis Plan as a major deliverable. The Amended Draft QAPP should include the following statement:

> "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

115. Q-Trak #

The Q-Trak #, once assigned by the EPA's quality assurance staff, will be provided to NORCO by the EPA's RPM for the Site. This number should be included in the Title Page, and subsequent pages as appropriate, of the Amended Draft QAPP.

116. Quality Assurance/Quality Control Project Plan

The Amended Draft QAPP should follow the format and contain the information recommended in the EPA's QAPP requirements and guidance documents, respectively, entitled; "EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5" (EPA/240/B-01/003, March 2001); and "Guidance for Quality Assurance Project Plans, EPA QA/G-5" (EPA/240/R-02/009, December 2002). These documents provide guidance on the required format and content for the QAPP for this project. Paragraph 21 of the RI/FS SOW specifically requires the use of the EPA's QAPP requirements document, which references the QAPP guidance companion document, for the QAPP's format and the required content. The Amended Draft QAPP (including the Amended Draft WP and FSP) should be revised to reflect the terminology used in the EPA's requirements and guidance documents.

The MDI Final QAPP, included as Attachment B (Many Diversified Interests, Inc. Superfund Site; Houston, Texas; Field Sampling Plan and Quality Assurance Project Plan [on compact disk]), is provided as a recent example of a deliverable that has been approved by the EPA. This deliverable was prepared by the EPA's contractor along with technical direction from the MDI Site's RPMs. The Amended Draft QAPP should be revised to include similar format and content. General Comments G (Potentially Responsible Party), J (Preparation of the Proposed Plan and Record of Decision), and K (References to the Many Diversified Interests, Inc., Superfund Site; Houston, Texas) provide the EPA's discussions concerning these comments.

ATTACHMENTS
(On Compact Disk)

Attachment A
Documentation of Hazardous Substances and Contaminant Releases to the Environment

Attachment B
Many Diversified Interests Inc. Superfund Site; Houston, Texas;
Field Sampling Plan and Quality Assurance Project Plan

Attachment C
Example Conceptual Site Models (Flow Diagram and Schematic Formats)

Attachment D
Example Tables of Sample Quantitation Limits and Screening Levels

Attachment E
Example Sampling Design Summary Tables

Attachment F
Example Judgmental and Random Grid Sampling Designs